2.

AN ESSAY ON THE BITE OF A MAD DOG.

By DANIEL PETER LAYARD, M. D.
Physician to Her Royal Highness the Princess Dowager of Wales, Member of the Royal College of Physicians in London, and of the Royal Society.

Conveniens homini est, hominem servare voluptas,
Et melius nulla quæritur arte favor.

Ovid. Epist.

The SECOND EDITION.

LONDON:
Printed for John Rivington, in St. Paul's Churchyard; and Thomas Payne, at the Mews-gate.
MDCCLXIII.

St. James's Powder Preface p. XX.

ERRATA.

Page 51, line 11. *for* distant ages, *read* distant places.
p. 98. lines 12 and 18. *for* full moon, *read* new moon.

TO

Sir EDWARD WILMOT,

BARONET, M. D.

Fellow of the Royal College of Phyſicians in LONDON, and of the Royal Society, Firſt Phyſician to His Moſt Sacred MAJESTY, and Phyſician General to the Army.

SIR,

TO reverence patrons while living, and to hold their memory in the higheſt veneration after this life, is the duty of every open hearted and grateful mind.

The publication of this Eſſay, affords me the favorable opportunity of expreſſing in the ſtrongeſt manner, my gratitude for the unmerited favors I re-

ceived from that no leſs generous and humane MÆCENAS, than learned and ſucceſsful phyſician Doctor MEAD.

Like many others, at my firſt ſetting out in practice, I found in him an encourager, who far from ſuperciliouſly deſpiſing the inabilities and want of experience in youth, felt a pleaſure in animating and inciting them to cultivate that emulation and zeal, which by their application they ſhewed for the ſtudy of whatever might prove uſeful.

The benevolent friend to mankind, in this as in other inſtances, ſtrictly adhered to his MOTTO, and proved that he was formed NON

NON SIBI, SED TOTI.

Accept SIR of this imperfect work, as a token of that reſpectful remembrance I ſhall ever retain for Doctor MEAD, and of my true regard for all his family.

That YOU, SIR, whom two ſucceeding monarchs have highly honored and deſervedly diſtinguiſhed, may continue to enjoy the royal confidence and the full poſſeſſion of whatever you can deſire, is the hearty and ſincere wiſh of

SIR,

Your moſt obedient and
moſt obliged humble Servant,

London March 28, 1762.

DANIEL PETER LAYARD.

DEDICATION.

THE PREFACE.

WHENEVER a calamity of any kind befalls ſociety, it is natural for every individual to join in the alarm, and to enquire into the means of leſſening, or avoiding the danger.

The ſubject of the following eſſay, although examined and treated of, by many authors of the moſt reſpectable character, is of too near and general concern for mankind to remain ſatisfied with the doubtful and apprehenſive ſtate in which they were left, through the uncertain effects of the cures hitherto directed. Many remedies have proved ſucceſsful, which in other conſtitutions or climates failed. And the

only method to be depended upon ſeemed of too recent a date, for the univerſal adoption of that practice, without a confirmation of it's utility by repeated facts. It therefore behoved every one, whoſe profeſſion was the healing art, to examine into the particular nature of this diſeaſe, the reaſons why it had been ſo long undetermined in it's qualities and cure, and to remove ſuch prejudices as were the ſtrongeſt obſtacles to ſuch a deſirable end.

Notwithſtanding the higheſt veneration and moſt ſincere reſpect was paid to Doctor MEAD's eſſay on this ſubject, yet the later improvements of others, deſerved alſo their due conſideration; and ſome ſucceſsful cures incited me, not only to examine into the manner of their being performed, but alſo upon a clear conviction of the method being advantageous, I have ventured to ſtate the facts and illuſtrate the diſcoveries of others, by bringing the account

count of this ſo terrifying diſeaſe to the teſt of reaſon; for as CELSUS obſerves in his preface, the practice of medicine ought to be rational.

This eſſay in the introduction, endeavors to ſhew, that the ſmall advances in the knowlege of this diſeaſe, and the uncertainty of it's cure are owing to common prejudices and vulgar errors, which have always proved of the greateſt hinderance to the progreſs of every ſcience, but particularly of the art and practice of medicine.—And alſo it points out the nature of this diſtemper incident to mankind, from the bite of a mad dog.

The firſt ſection treats of the bite of a mad dog, as the cauſe of the malady, examines into the properties of the *ſaliva* of thoſe animals, and by what means it becomes hurtful and poiſonous to other creatures. The progreſs of this poiſon is alſo traced, and it's various effects enquired into.

Doctor MEAD's ſyſtem, that the nervous fluid is chiefly affected in this diſeaſe, has been called in queſtion, and the nerves themſelves have been fixed upon as the ſeat of this diſtemper, and all the ſymptoms accounted for by the ſpaſmodic contractions of the nerves. I have induſtriouſly avoided all unprofitable controverſies, which in the art of medicine, as in all other arts and ſciences, tend more to divide than to reconcile and convince the diſputants. It probably may be in this caſe, as in many others, that by yielding and making ſome allowances on each ſide, truth would be eaſier aſcertained than by cavilling through motives of pride and obſtinacy. The wiſe father of phyſic has told us*, *That our art is extenſive, and our life but ſhort.* Why ſhould we then waſte in trifling and needleſs altercations the little time we have to run over the vaſt field of medicine?

* HIPPOCRATIS Aphoriſm i.

Men

Men of the greateſt abilities and acknowleged underſtandings have acquieſced in the perſuaſion of a nervous fluid, and of it's being not only the agent of the ſoul, but alſo that it is liable to be deſtroyed or propagated. Thoſe who deny it's exiſtence, do not refuſe to acknowlege that the nerves are compoſed of a prolongation of the *meninges*, containing a pulpous portion of the brain, or *cerebellum*, *medulla oblongata*, or *medulla ſpinalis* in them, but will not allow that the nerves are vaſcular, and therefore ſolve all their actions by the vibrations, oſcillations, and ſpaſmodic contractions of the nerves. Allowing theſe external effects, which BAGLIVI, and the later accurate experiments of profeſſors HALLER and WHYTT, and of Doctor BROCKLESBY, plainly evince of the irritability of the nervous parts, why may not the opinions of thoſe learned profeſſors and Doctors, SYDENHAM, BAGLIVI, BORELLUS, BOERHAAVE, MEAD, HOFFMANN, LIEUTAUD,

TAUD, WHYTT, and HUXHAM in favor of a nervous fluid, or animal ſpirits be adopted? And at the ſame time that we find in thoſe authors the proof of a *ſtimulus* in the blood, which acts on the nervous fibres of the blood-veſſels, why may not the exiſtence of a *ſentient* voluntary principle be allowed of, which directs our will and motions at the ſame time that the component particles of the blood, particularly the ſalts, ſtimulate the veſſels to ſuch a degree, as to preſerve the circulation of the ſtreams of life? If it be urged that no one ever diſcovered either the nervous fluid or the veſſels the animal ſpirits paſs through, may it not be anſwered? That the OMNIPOTENT CREATOR has framed thoſe tubes according to their uſe, and notwithſtanding they may be too fine for our diſcovery even with the beſt microſcopes, yet it may not be contrary to common reaſon, that they may be ſo formed as to convey proper ſubtile, elaborated particles

ticles from our blood, which may ſerve as the different links of the chain which connects our intellectual and corporeal faculties together; the exiſtence of which rational ſoul intimately connected with our body, no one will preſume to deny, although the means whereby they are united are effectually hidden from our limited view. How ſtrenuouſly ſoever both ſides may ſeem to inſiſt on their different opinions, it is very evident that their purſuit in practice, are the ſame; both in food and medicine, time out of mind, ſuch diet or phyſic has been given, which would promote the greateſt ſeparation of active particles to increaſe the ſpirits; and even thoſe who ſtimulate the nerves, to produce their contractions, adminiſter, and apply the ſame remedies to augment the circulation and heat, which is conſtantly leſſened by perſpiration. Since whatever be the ſingular notions of each ſide, they both follow the ſame intentions,

there

there can neither be ſatisfaction nor utility in taking part in the diſpute, but every one is to be left to enjoy his own opinion.

The ſecond ſection enquires into the *hydrophobia*, and ſhews that this affrighting ſymptom is common to other diſeaſes, although not ſo general or peculiar, as in this one, occaſioned by the bite of a mad dog.

The third ſection examines the ſeveral methods of cure, whether rational or empirical. Among others, bathing in the ſea, or in cold ſpring water, are ſeverally treated of. I have freely given my opinion in relation to every external application, or internal medicine, uſed for the cure of this diſeaſe, and have endeavored particularly to ſhew that Doctor MEAD's powder, although far from being an infallible remedy, is neither uſeleſs, or void of merit. In the conſideration of the different methods which are recommended, I have had conſtantly before me

the

the example ſet to every phyſician by profeſſor BOERHAAVE and Doctor MEAD. It is well known by many, and recorded by Doctor MATY, who was intimately acquainted with both, that thoſe learned men were not always of the ſame opinion, and yet their emulation towards the improvement of their profeſſion was ſo diſintereſted and void of jealouſy, that they retained for each other the higheſt ſenſe of eſteem and friendſhip; never were diſpleaſed with each other when they differed in opinion, but mutually and reciprocally communicated their obſervations and deſigns, and were conſtantly preſenting one another with tokens of their regard. This humane and benevolent turn of mind in them both, appears in Doctor MATY's characters of thoſe two great men *. And he inſtances, that

* Eſſai ſur le caractere du Grand Medecin, ou eloge critique de Mr. BOERHAAVE.

Journal Britannique, tom. xiv. Ann. 1754, mois de Juillet & Aout article 1er. p. 229, 230. Eloge du Docteur RICHARD MEAD.

the

the BRITISH phyſician looked upon profeſſor BOERHAAVE's notions as chimerical, when he ſought to cure the ſmall pox without ſuppuration, by means of a ſpecific medicine extracted from *antimony* and *mercury* †. And the LEYDEN profeſſor was perſuaded that the *aſh colored ground liverwort* was by far, too highly extolled by Doctor MEAD for the cure of the *hydrophobia*. Theſe oppoſite ſentiments were candidly and amicably conſidered, and did not in the leaſt decreaſe the high opinion and confidence they had for each other. In imitation of ſuch venerable patterns, I have carefully expreſſed my thoughts as fully and clearly as I could, without giving offence, or leſſening in the leaſt that reſpectful tribute due to every perſon who exerts his abilities for the common good of mankind.—In this ſection the external and internal uſe of *mercury*, for

† BOERHAAVE de materie medica, ſect. 1392. p. 256.

the

the prevention and cure of this diſeaſe are particularly conſidered.

The fourth ſection contains caſes and obſervations tending to illuſtrate and confirm by facts, the ſucceſs of the method which was purſued. Although the number be but ſmall, there being only ſeven, yet from theſe may be drawn ſufficient confirmation of the variety of the diſtemper, according to the ſex, conſtitution of the patient, and ſeaſon of the year. The firſt two caſes are plainly acute. The three following are doubtful. The ſixth of the putrid kind. And the ſeventh ſlow. Of theſe I am under the higheſt obligations to Doctor Hele of Salisbury, and to my very worthy friend Charles Allix, Eſq; for their kind communications. And as in an enquiry of this nature, even few well atteſted facts ſerve greatly to aſcertain the truth of an efficacious practice, ſo trials made by different perſons, and ſuch who are not of the profeſſion, will corroborate a teſtimo-

ny, and ſatisfy thoſe who may have but an unfavorable opinion of medicine and phyſicians.

To every caſe I have ſubjoined my remarks, and I flatter myſelf, that the freedom I have taken will not be diſagreeable to the authors of them, eſpecially to Doctor NUGENT, whoſe ingenious Eſſay on the *hydrophobia*, and remarkable caſe of ELIZABETH BRYANT, I could not paſs over without paying it due regard.

It may be obſerved, that in my remarks upon the caſe of FRANCIS RAY, I have taken no notice of Doctor JAMES's fever powder given by Mr. ALLIX, and leſt I ſhould appear to be biaſſed or prejudiced, I think it but fair to declare, that I am fully convinced Mr. ALLIX gave it to FRANCIS RAY with no other intention, than to quicken the operation of the ſea water which he ſent, and whoſe purgative quality he feared might be leſſened conſiderably by being ſtale. Doctor JAMES ſeems in the

caſe of WILLIAM GOODACRE *, to attribute the cure of that perſon in the *hydrophobia*, to have been owing to his powder; but it doth not appear that this man had been bitten by a mad dog, and moſt probably the ſymptoms of the *hydrophobia* in the ſmall-pox, were no other than what are obſerved in acute fevers, eſpecially of a putrid nature, where the nerves of the *æſophagus* are particularly affected. I do not pretend to know, nor will I allow myſelf the liberty of gueſſing at the contents of that fever powder, which I own I never ſaw. From the effects which I have ſeen, it is a medicine of a powerful nature; it may undoubtedly have been of ſervice in the beginning of fevers, in diſlodging the putrid *ſaburra* from the firſt paſſages where it lodged, and cauſed the flame, but this I can ſafely add, from my own obſervation, that the purging, vomiting, and profuſe ſweats which attend it's operation,

* JAMES's Diſſertation on fevers, p. 50.

cannot be ſafe in ſuch a relaxed, low, and depreſſed ſtate, wherein the *vis vitæ* is almoſt exhauſted. In the recital of ſo many caſes to recommend the ſale of this powder, it were to be wiſhed that in juſtice to mankind thoſe alſo had been inſerted wherein it had failed, as ſo many cautions to avoid the improper adminiſtration of it. A phyſician who has the welfare of his patient and reputation at heart, can never direct a medicine whoſe compoſition and ingredients he is a ſtranger to, let his deſire of relieving his patient in the ſpeedieſt manner be ever ſo laudable and juſt. And on the other hand, ſuch phyſicians are rather to be commended than blamed for their tenderneſs and humanity, when after declining to preſcribe this powder, they have generouſly attended their patients, to watch and guard them againſt the violent effects of ſo active a medicine which they have taken of their own accord, or by the perſuaſion of their zealous friends.

After

After all, Doctor JAMES who has alſo inſerted WILLIAM GOODACRE's caſe in his *treatiſe on canine madneſs*; *p.* 7, 8. "owns that he could not diſcover "the man had been bitten by a mad "animal to occaſion the *hydrophobia*, "nor does he know in that caſe that "his powders would have cured him."

Laſtly, in the concluſion, after enquiring into the cauſe of the general alarm, ſpread over the metropolis on account of mad dogs, ſome directions are given for the treatment of the diſeaſe, occaſioned by the bite of a mad dog.

This is the ſubſtance of the Eſſay, now offered to the public, and which ſhould have been publiſh'd ſome months ago, when it was drawn up, had not the advertiſing of Doctor JAMES's *treatiſe on the canine madneſs* retarded it's appearance, but on peruſing that work and finding nothing to prevent this publication, I venture to ſubmit my thoughts on the ſame ſubject, to the examina-

examination of every candid reader, whom I would firſt apprize, that I claim ſo little merit in this performance as truly to be able to ſay with the poet,

Vix ea noſtra voco.

for I have only illuſtrated and attempted to reconcile the various opinions of others, and to fix upon the moſt rational method of cure from a full conviction, that ſuch cure is in reality a practicable thing.

Let the reader then judge candidly of this performance, which if it prove the means of leſſening the general and too ſtrong rivetted apprehenſions of the diſeaſe, and alſo contributes to the prevention or cure of it, I ſhall think I have not miſ-ſpent my time, nor forfeited the good will and favor of my countrymen.

THE

THE

CONTENTS.

The Introduction, Page 1

SECTION I.

Of the bite of a mad dog, 7

SECTION II.

Of the hydrophobia, 32

SECTION III.

Of the different methods of cure, 49

SECTION IV.

Obſervations, 90

Concluſion, 120

INTRO-

THE CONTENTS.

The Introduction, Page 1

SECTION I.

Of the Use of a Medicine, 7

SECTION II.

Of the Symptoms, 32

SECTION III.

Of the different Medicines, 49

SECTION IV.

Observations, 90

Concluding Remarks, 130

INTRO-

INTRODUCTION.

SIR THOMAS BROWNE †, in his enquiries into vulgar and common errors, among other cauſes of deception, places credulity, authority, and adherence to antiquity; and no doubt, as he obſerves, through the natural infirmity of human nature, through a ſupineneſs and readineſs to believe whatever is tranſmitted, by a tradition ſeemingly authentic, and diſtinguiſhed with authority, men are led implicitly to adopt the opinions of their forefathers, to propagate them with the ſame confidence as if they had been eye-witneſſes of what they aſſert, and thus hand down to poſterity the errors they early imbibed, and never gave themſelves the trouble of inquiring into. But although mankind is not quite free from thoſe prejudices, which are ſo many obſtructions to the advancement of every art and ſcience, yet daily experience teſtifies, that in an enlightened age popular notions are not ſo univerſally adhered

† SIR THOMAS BROWNE's Enquiries into received tenets, and preſumed truths, book i. chap. iv, v, vi, vii.

to, unleſs they be eſtabliſhed by repeated experiments, and matter of fact.

Indeed now-a-days, ſome men run into another extreme, and from a predominant principle of vanity, reject, as ſo many idle tales, or falſe conjectures, every thing, which doth not immediately ſtrike them, not only withholding their aſſent, but even refuſing to examine, into the truth of whatever is propoſed to their conſideration. Thus it is hard to ſay, which of the two, credulity, or ſcepticiſm, has proved the greater obſtacle to the improvement of natural knowlege. It is plain, that both have ended in a ſtrong ſpirit of enthuſiaſm, and that, in the art of medicine, as in other liberal arts, men through credulity, authority, adherence to antiquity, and alſo through ſcepticiſm, have been ſtrangely miſled. But the true Philoſopher ſteers a middle courſe, and avoids both thoſe extremes; he reſpects the authority of the ancients, without yielding his aſſent to what is either unnatural, or improbable; nor does he haſtily condemn them, in favor of new diſcoveries, unleſs theſe are confirmed by repeated experience. On the other hand, he does not reject whatever is offered contrary to ancient authority, but candidly examines, what is propoſed on both ſides, and agrees to every new improvement, which bears the teſt of repeated examination.

Had not this been the rule which ſeveral great men have obſerved, the art of medicine

would, at this time, have been as much a conjectural art, as in the time of CELSUS*. It's certainty, indeed, can never be expected to be abſolute, while there are, and muſt neceſſarily be, ſuch a variety of conſtitutions, and of courſe ſuch different degrees, as well as ſpecies, of the ſame diſtemper.

It is therefore the Phyſician's province, to diſcover the nature of the diſeaſe, the variety of its degrees, and appearance in different conſtitutions and climates, and to regulate his practice accordingly.

But to this great end, he muſt previouſly be acquainted with the conſtruction of the human body, and the laws of the animal œconomy. It will not be ſufficient alone to know the texture of the ſolids, without examining alſo the fluids. The knowlege of the circulation of the blood, which diſcovery will ever be the greateſt honor to our countryman Doctor HARVEY, can avail but little, if the conſtituent parts of the blood are not examined, and, in the courſe of its circulation, the ſeveral ſecretions are not traced, the recrements and excrements obſerved, that by theſe inquiries the conſtitution and ſtrength of every perſon may be determined.

Thus, by joining to what the ancients have remarked on theſe ſubjects, the improvements that have ariſen from later experiments, the

* CELSUS De Medicina, in præfatione, p. 13—57.

great advantages proceeding from both will be happily united. The art of medicine will then appear, as Dr. BARKER ſays †, to have a ſettled rule of practice; and allowing for the difference of climate and conſtitution, the precepts of the *ancients*, and directions of the *moderns*, will be eaſily reconciled, according to their ſeveral notions of thoſe diſeaſes which repeated experience had made familiar.

Whenever any acute diſeaſe hath alarmed mankind, by its rapid progreſs, or baneful deſtruction, ſo as to have produced the greateſt fears on its appearance, and deſpondency on its firſt effects, men have embraced, with the utmoſt eagerneſs, whatever method of relief has been offered, in the hope of receiving a ſpeedy and inſtantaneous cure. This is remarkably the caſe with reſpect to that diſtemper, in particular, which is intended to be the ſubject of the following Eſſay.

There is not a more dreadful diſeaſe incident to human nature than that which we are liable to from the bite of a mad dog. The ſymptoms of it are terrible, the conſequences are generally fatal, and the cure hitherto uncertain. The reflection on ſuch an unhappy ſituation, which inſtantly occurs to a perſon bitten, diſpoſes him to hearken, with implicit ſubmiſſion, to the opinion and advice of every one in whom he has the leaſt confidence: the

† BARKER's Eſſay on the agreement between ancient and modern phyſicians, chap. i.

the * boaſted remedies of the ancients, or empirical jumbles of later times, are applied in vain, the poiſon gains ground, and the patient, ſeeing himſelf diſappointed, begins to doubt of the poſſibility of his being ſaved, and adds to the fury of the diſeaſe by his deſpondency and deſpair; till at laſt the aggravated ſymptoms relieve him from miſery, by a welcome death, or which was the cuſtom, not a century paſt, the unfortunate perſon was, contrary to all rules of humanity, deprived of life, by being ſmothered between two feather-beds †.

To prevent, therefore, all ill conſequences ariſing from vulgar and common errors, the nature and effects of this poiſon, on the animal œconomy, the different methods of cure recommended in all times, and the few cures performed, are candidly to be examined, and mankind freed, if poſſible, from that moſt terrible reflection, that providence ſhould have permitted the whole animal creation to be liable to ſo dreadful a diſeaſe, without pointing out, alſo, the means of cure.

That this diſtemper is not abſolutely incurable, many inſtances plainly prove; and profeſſor BOERHAAVE is of opinion, "That "from the examples already ſettled, and con- "firmed in the caſes of other poiſons, we

* BOERHAAVII Aphoriſmi, 1139, 1141.
† MEAD's Eſſays on poiſons, p. 176.

" ought not to deſpair of finding out the pro-
" per antidote for this alſo *."

In the courſe of this Eſſay I ſhall endeavor to prove, that this diſeaſe is of a complicated kind, having different appearances according to the age, ſtrength, conſtitution, ſex, and manner of life of the perſon bitten, temperature of the climate he inhabits, and the ſeaſon of the year in which the accident happens; and alſo, that as circumſtances of this ſort are found to vary in particular caſes, the method of treatment is to be varied likewiſe.

* Nec deſperandum tamen, ob exempla, jam in aliis venenis conſtantia, de inveniendo hujus ſingularis veneni antidoto ſingulari. BOERHAAVII Aphoriſmus, 1146. VAN SWIETEN Commentar. in BOERHAAVII Aphoriſmos, tom. iii. p. 579.

SECTION

SECTION I.

Of the Bite of a Mad Dog.

BEfore I proceed to give an account of the ſymptoms occaſioned by the bite of a mad dog, it may not be improper to obſerve,

Firſt, That wounds made by the bite of a perſon, in the height of anger, of enraged animals, or wild beaſts, are always attended with ſevere accidents: theſe are owing, as CELSUS declares *, very properly, not to any particular poiſon in the animal, but to the violent laceration and compreſſion of the muſcles, nerves, tendons, veſſels, ligaments, and bones; particularly in the bite of a large dog, of an horſe, a wolf, a bear, or any ſuch ſized creature whoſe tuſks and teeth either ſqueeze and bruiſe the parts they lay hold of, with ſo much force, as to make a deep wound, or tear away with exquiſite pain, whenever their teeth have not entered ſo deeply. The ſymptoms ariſing from theſe bites, are, to the full, as violent as thoſe which attend lacerated wounds

* CELSUS, lib. v. cap. 27.
HEISTERI Chirurgia, part. i. lib. i. cap. xvi. p. 160.

occaſioned by any blunt-pointed or rough inſtrument whatever; the loſs of ſubſtance, and the parts affected, determining the violence of the ſymptoms, and the length of time requiſite for obtaining a cure, according to the degree ot ſuppuration, and conſtitution of the patient.

Secondly, Such is the fermentation raiſed in the blood, by the paſſion of anger, that the momentum of the circulation is greatly increaſed, and the ſecretion of the *ſaliva* forced out, in a larger quantity, by the frequent pulſation and compreſſion of the blood-veſſels. Such perſons, or creatures, who are leſs liable to ſweat, have generally a more copious diſcharge of urine; but in a violent fit of anger, the urinary ſecretion is ſuſpended, and they throw out large quantities of *ſaliva*, which appears the more frothy, the more the perſon or animal is enraged, according to the velocity of the circulation of the blood, which is ſometimes increaſed to ſuch a degree, as to produce an high fever, attended with *delirium* and convulſions, and which, in ſome inſtances, brings on an apoplexy, and death.

Thirdly, That the *ſaliva* of a man, an horſe, a monkey, and even of a dog, is not poiſonous in a ſound ſtate, nor even when they are provoked to anger, common experience daily proves. The *ſaliva* is a thin, tranſparent humor, which, heated on the fire, doth not thicken, is free from taſte or ſmell, froths

froths when ſtrongly ſhaken, and is a glandular juice ſeparated from pure arterial blood, and conſiſting of water, ſpirit, oil, and ſome ſalt*. Now I ſhall only aſk, Whether it is not univerſally admitted, that medicinally the *ſaliva*, both of man and animals, have been recommended externally as detergents, and dryers? Is it not known that many perſons have found benefit from training up young dogs daily to lick foul ulcers, which no ointment could cleanſe ſo well? And Lord Bacon † has long ſince taken notice of it as a common obſervation, That dogs are almoſt the only beaſts which delight in fetid odors; whence their readineſs to lick their own, and other ſores, may be accounted for: and there never was known a ſingle inſtance in which the *ſaliva* of a young dog, although it has effectually acted as the moſt powerful deterſive on ulcers, and has been received on thoſe ulcers, when bleeding, hath produced the leaſt ſigns of madneſs, or *hydrophobia*,—merely becauſe the dog was in a ſound ſtate.

No other ſymptoms, therefore, will ariſe after the bite of an angered perſon, or an enraged animal, ſuch as an horſe, a monkey, or a dog, than will appear from a lacerated and contuſed wound violently compreſſed and torn.

* Boerhavii Inſtitutiones Medicæ, v. 66.

† Bacon's Sylva Sylvarum, cent. ix. v. 835. Epiſtle on fetid and fragrant odors.

I come

I come now to conſider what may be the cauſe of madneſs in dogs and other animals, and to deſcribe the ſymptoms which attend the bite of thoſe animals when mad.

PALMARIUS *, a diſciple of FERNELIUS, who gives a circumſtantial account of this madneſs, deſcribes it to be a rage which ſeizes dogs at any time of the year, but chiefly during that part of the ſummer called the dog-days; that they communicate this madneſs by contact, both to man and beaſt. Whenever a dog, an animal eaſily provoked to anger, of a natural propenſity to become furious, is kept from drink, either during the exceſſive heat of the ſummer, or the ſharp cold in the winter †, his bile acquires ſuch an extraordinary degree of acrimony, that he grows mad: but if theſe contrary diſpoſitions of the atmoſphere affect his blood and humours in ſuch a manner that he become furious, it often alſo happens, that, through long faſting, being filled with ſalt meats or ſalt drink, or through want of drink after long and laborious exerciſe, a dog runs mad: and, particularly, if a dog has been bitten by one mad, or hath eaten of the fleſh of any animal dead of madneſs, or of the plague, or of any putrid diſeaſe, killed by lightning, or by poiſon,

* JULIUS PALMARIUS Conſtantius De morbis contagioſis.

† DIOSCORIDES De Theriaca, cap. i. Signa rabioſi canis, eorumque qui ab eo demorſi fuerunt.

or hath drank of ſtinking and corrupted waters, or eaten of high-ſeaſoned acrid food, or hath worms;—in any one of theſe caſes he is liable to go mad. Therefore in ſuch countries where the change of air is ſudden or extreme, ſometimes violently hot, at other times intenſely cold, this diſeaſe, in proportion, is more common ‖.

An inſtance of the ſudden effect of cold on a dog, I ſhall here relate. In the month of *February* 1744, on a clear froſty morning, a perſon of my acquaintance going from his houſe in *Dean-ſtreet*, near *Soho-Square*, to *Mary la bonne*, took out with him a ſmall dog, of a ſpurious breed, partly ſpaniel, and partly harlequin, which had been kept within doors all the preceding part of the winter. The little creature was much delighted with his liberty, and running to and fro', when near *Cavendiſh-Square*, his maſter ſaw him reel, and ſtagger; upon which, he took the dog up into his arms, and was rubbing his legs, on the ſide he thought was benumbed with the cold, when, on a ſudden, the dog was obſerved to froth conſiderably at the mouth, his eyes were red like fire, and immediately, from being a timorous and fond animal, he began to ſnap at his maſter, and attempted, ſeveral times, to bite him.—On

‖ Boerhaavii Aphoriſmus, 1134. Van Swieten Comment. tom. iii. p. 539. Mead's Eſſays on poiſons, p. 137.

this,

this, convinced of the danger he was in, the gentleman threw him out of his arms, and the dog ran ſwiftly down the next ſtreet, where he was purſued into a meuſe. He then endeavored to bite a large dog, which avoided him, and afterwards ran at ſome coach-horſes which the farrier was ſhoeing; but upon his maſter's calling out to the man, the dog was prevented from doing any miſchief, by a fortunate ſtroke of the farrier's hammer, which at once put the poor animal alſo out of pain.

Such is the pernicious virulence of the *ſaliva* thrown out by a mad dog, that all kinds of animals whatſoever, ſuch as monkeys, ſwine, cats, oxen, horſes, ſheep, mules, foxes, wolves, and others, are not only liable to grow mad, upon being bitten; but alſo have, without any bite, been ſeized with the *hydrophobia* upon the ſole contact and admiſſion of a mad dog's *ſaliva*. And PALMARIUS † relates an inſtance of a countryman, who raving mad of this diſeaſe, and being informed he had not long to live, deſired, in an intermiſſion of his fits, that he might take his laſt farewel of his children, which the people who kept him tied down having conſented to, he kiſſed them, and then was ſuffocated. However, on the ſeventh day the children were ſeized with the ſame illneſs, and died in the ſame cruel agonies and pains. He alſo

† PALMARIUS loc. cit.

has

has ſeen cattle killed by eating ſtraw on which the ſlabber of mad animals had been left.

* Coelius Aurelianus records a quicker progreſs of the infected *ſaliva*. He ſays, that a certain botcher-woman having taken a coat to mend, which had been torn by a mad dog, having drawn the threads through her lips to make them ſtick together, and having moiſtened the ſeams with her tongue, that her needle might paſs through the eaſier, ran mad the third day.

Notwithſtanding Galen aſſerts ‖, that dogs are the only animals which become mad without being bitten, or the leaſt communication; many of the abovementioned creatures grow furious without any previous infection, but none ſo frequently as dogs, foxes, and wolves †. Palmarius ‡ has ſeen twenty wolves, driven mad through hunger, ſally out of a foreſt, and ſeize every living creature that came in their way, none of which eſcaped who were bitten.

* Sartrix etiam quædam quum chlamydem ſciſſam rabidis morſibus, farciendam ſumeret, atque ore ſtamina componeret, & lingua pannorum ſuturas lamberet, aſſuendo quo tranſitum acus faceret faciliorem, tertia die in *rabiem* veniſſe memoratur. Coelius Aurelianus De morbis acutis, lib. iii. cap. ix.

‖ Galenus, lib. vi. De loc. affect.

† Boerhavii Aphoriſmi, 1132, 1133.

‡ Palmarius, loc. cit.

Doctor

Doctor LISTER*, and Doctor MEAD†, assign the true cause of the violent fermentation, raised in the blood of dogs either through heat or cold, by observing, "That no dog "ever sweats; and that as next to the miliary "glands in the human body, the salival glands "are the most constant and easy emunctories, through which the saline and active "particles of the blood are discharged, more "spittle is separated in a dog, when mad, "than at any other time, and that very "frothy, or impregnated with hot subtil "parts."

Now whenever this discharge is obstructed, by too great a viscidity of the blood, from an increased circulation and want of dilution, the consequence of long thirst; then the saline particles grow more acrid, and the absorbed bilious salts particularly acquire such acrimony, as to produce a high fever and *delirium*, by irritating the nerves, disturbing the secretion and course of the nervous fluid, and throwing all the laws of the animal œconomy into confusion, exciting such different and various symptoms, in persons of different sexes, and constitutions, according as Doctor MEAD rightly says, to the passions of the mind they are most inclined to. And in this morbid state of a dog's *saliva* the symptoms will be

* LISTER, Exercitatio iii[a], p. 133.

† MEAD, Essay on poisons, p. 138.

more

more aggravated, than thoſe which attend the bite of an angered animal that is ſound, and the patient will be in greater danger. Or whenever the blood and juices of a dog, cat, wolf, or fox, ſhall be ſo vitiated as to become putrid, by either of the cauſes already recited, then will a perſon, bitten by ſuch animal, be expoſed to all the fatal accidents which the admiſſion of ſuch a putrid, high fermenting *ſaliva* muſt naturally produce, by mixing with the blood and humors, particularly the nervous fluid, which is remarkably affected in putrid diſeaſes of all kinds, but eſpecially in peſtilential and bilious fevers, wherein the acrimonious ſalts of the putrid bile abſorbed into the blood, and alſo the diſſolved ſtate of the blood, which ſoon follows, vitiate the nervous fluid, at the ſame time that the coats of the nerves are both irritated and relaxed. Hence thoſe irregular ſpaſms, and involuntary contractions, all over the body, which bring on a tenſion, ſtronger convulſions, and at length, by drying up the nerves, and deſtroying the fluid commonly called the animal ſpirits, put an end to the motion of the neceſſary ſprings of life.

This diſeaſe, therefore, is of a different nature, and even more or leſs complicated, according to the ſeaſon of the year, and to the ſtate of the juices belonging to the mad animal, whether ſound or morbid. Obſtruction of perſpiration will, in winter, produce fever,

deli-

delirium and phrenzy, or madneſs; long faſting, thirſt, after violent exerciſe, ſalted, ſpiced, and all acrid meats: likewiſe * worms bred in the ſtomach, inteſtines, and at the root of the noſe, will have the ſame bad effects of producing madneſs, and the active particles of the dog, cat, wolf, or fox's *ſaliva*, rendered more ſubtil by the increaſed momentum of the blood, will be capable of infecting man or any animal that they ſhall bite with the ſame fermentating principles, and of bringing on the ſame fatal ſymptoms.

In ſummer, the humors of the body affected by tainted air, food, or by ſtagnating and corrupted waters filled with innumerable inſects, both living and dead, are ſubject to a putridity, which is afterwards increaſed by the velocity of the blood rarefied particularly in the ſummer, and even in autumn, through the heat of the ſeaſon. In man, this produces an

* Some authors have been fond of the notion, that not only the *hydrophobia*, but the ſmall-pox, the *Lues Venerea* all cutaneous eruptions, and many other diſorders are produced by worms, generated in the ſeveral humours of the body. That worms are admitted and multiplied in the firſt paſſages, and under the integuments both of man and beaſt, and occaſion various complaints, common experience daily ſhows. But as profeſſor ASTRUC has refuted, the exiſtence of worms in venereal caſes, I ſhall refer the reader to his opinion †, which will hold good in ahe examination of the vitiated *ſaliva* of a mad dog, in which no one as yet proved the appearance of any ſuch vermin.

† ASTRUC de morbis venereis, tom. i. lib. ii. c. ii. p. 127, & ſeq. tom. ii. p. 1067.

acute

acute, or a bilious fever, which deprives the ſolids of their contractile force, deſtroys the animal ſpirits, inflames the membranes of the brain, brings on a *delirium*; and either kills the perſon by convulſions, or by changing the whole maſs of blood into *pus*, expoſes the patient either to critical tumors, diſcharges of matter, a *maraſmus*, or to ſome chronical diſeaſe, unleſs timely prevented. In the brute creation, the progreſs would be the ſame, were they not deſtroyed as ſoon as the fever appears, eſpecially if attended with a phrenzy; for no ſooner doth the *delirium* ſeize them, than that fatal effect of their biting comes on, and the blood then being in its higheſt degree of fermentation, has the more power to infect other bodies, and raiſe the ſame furious ſymptoms in them.

It appears therefore, that in different ſeaſons of the year, there is a latent diſpoſition in the fluids of dogs towards acrimony and putridity, which according to the various effects of thoſe ſeaſons manifeſts itſelf; and from an innocent ſecretion, turns the *ſaliva* of a dog to a moſt dangerous poiſon.

Here it may not be improper to deſcribe the ſigns of the ſeveral degrees of madneſs in dogs *.

The

* In Sir Theodore Mayern's account, publiſhed from his papers, by Sir Theodore de Vaux, there are reckoned up no leſs than ſeven diſtinct ſorts of madneſs or diſeaſes, peculiar to dogs. 1. The *hot madneſs*. 2. The

running

The madneſs, which through cold, ſeizes theſe animals like a phrenzy in winter, comes on ſo ſuddenly, as to afford no time for obſervation or caution, and many inſtances might be produced of houſe-dogs or others, biting their maſters and keepers, without the leaſt previous notice; and of the ſame furious effects being raiſed in the perſon bitten, by means of the acrimonious ſalts contained in the blood of the animal, and now let looſe and diſcharged in its *ſaliva*.

In all ſeaſons of the year, but particularly in ſummer and autumn, the madneſs ariſing from a putrid ſtate of the blood doth not come on ſo ſuddenly: there are manifeſt ſigns of the animal being ill; the progreſs of the diſeaſe is gradual; and either quicker or ſlower, according to the elaſticity and reſiſtance of the ſolids, and the degree of putreſcence, and acrimony of the ſalts circulating in the fluids.

The ſigns of a dog going to run mad, are theſe. He is firſt ſeized with a ſhaking and trembling, then grows thin, ſeems dejected, hides himſelf, refuſes to eat or drink, hangs down his ears and tail, ſneaks away growling, howls at times in a particular manner, flies

running madneſs. 3. *La rage mue*, or the *ſullen madneſs*. 4. The *falling madneſs*, or *epilepſy*. 5. The *blaſting* or *withering*. 6. The *ſleepy madneſs* owing to worms. 7. The *rheumatic* diſeaſe. Of theſe he ſays, the two firſt are to be catched by the breath of dogs, and are incurable; the five laſt contagious, but curable. Philoſophical Tranſactions, N°. 191.

upon

upon ſtrangers, and carries his head as if he were ſleepy. His eyes are watery, his noſtrils drawn cloſe, and diſcharging *mucus*, his mouth open, and running with his tongue dry, and of a bilious color.

In the ſecond degree of madneſs, which is by far the moſt dangerous; a dog forgets his maſter, lays hold without diſtinction, of every perſon or animal who comes in his way, and without barking, bites and tears whatever he ſeizes. He now cannot ſwallow, and turns away at the ſight of water. He opens his mouth wide, pants for breath, froths conſiderably, hangs his tongue quite out, which now turns of a livid color. His eyes are inflamed, and of a fiery red. He at times runs on furiouſly, at other times ſtands or lies down as if ſtupid, or half aſleep; particularly during the remiſſion of the fever, which conſtantly attends theſe ſymptoms, and whoſe paroxyſms, and exacerbations are regular *. In this condition, all other dogs ſhun him, and if they cannot well avoid him, they yield, and endeavor to ſooth him.

There are ſeveral methods recommended by PALMARIUS and others, to diſcover whether a dog is mad that has bit a perſon, and has either made his eſcape, or been killed before the ſigns of madneſs could be obſerved. Firſt, to apply a pultice of bruiſed walnuts to the

* PALMARIUS loc. cit.

wound, and let it lie on the whole night, and then give it to chicken for food, and if the dog which has eſcaped is mad, the chicken will die in a day or two. Secondly, to ſop up the blood running from the wound with a piece of crumb of bread, and offer it to dogs to eat, which they will refuſe, if the dog was mad; or to feed fowls with the ſame ſop, which will kill them in twenty-four hours, if the dog was in that dangerous ſtate. Another method adviſed, where the dog has been killed, is to rub his mouth, jaws and noſe with a piece of bread, ſo as to moiſten it with the *ſaliva*, and in the ſame manner offer it to dogs, or to feed fowls with the ſame intention.

Some perſons affirm, that ſuch dogs as have been wormed, never bite others, although they run mad either ſpontaneouſly, or after being bitten by a mad dog, but no reliance is to be made upon ſuch an aſſurance; ſince it is plain, that the danger of being infected is entirely owing to the admiſſion of the *ſaliva*, which may have the ſame bad effect, being licked up by other dogs, or received into any wound; although perhaps the *virus* may not be ſo ſpeedy in its progreſs, as when immediately conveyed by the bite of the infected animal. The extraction therefore of part of the *frænum* of the tongue, can be of no real uſe to prevent this calamity.

It is to be obſerved, that the *ſaliva* of a mad dog, cat, or other animal has no bad effect on the ſkin, any more than the venereal,

the

the leprous, or any other *virus* *, provided the ſkin be whole, and that the part on which the *ſaliva* has fixed be immediately cleanſed and well waſhed †.

But whenever the *ſaliva* of a mad dog is received into a wound, it takes the ſame courſe as the variolous matter, or the venereal taint; indeed in general, it is quicker in its progreſs, unleſs in ſome particular conſtitutions, wherein it has been known to lie dormant months and years ‖. But the *ſaliva* of a viper, a rattle-ſnake, or a *tarantula* is quickeſt of all in its effects, which however vary, as to the time of their appearance in different conſtitutions; and as REDI remarks, the *ſaliva* of the viper frequently produces the moſt cruel and violent ſymptoms, bringing the creature bitten to the very brink of death, and yet the animal is not deſtroyed, but is cured without help or medicine, and by the ſole power of nature ‡.

Children and young people are affected in a ſtronger manner, and ſooner than perſons more advanced in years §; owing no doubt to the different degree of velocity in the circulation of their blood. But no caution is

* STALPART VANDER WIELEN, Obſervat. rarior centur. i. p. 413.

† DU CHOISEL's method of treating perſons bit by mad animals, p. 20.

‖ FREIND, Hiſtoria Medicinæ, 4to, p. 208. MEAD's Eſſays on poiſons.

‡ REDI Experimenta Naturalia, p. 262.

§ DU CHOISEL's method, p. 18.

to be omitted, for although Monſ. SAUVAGES * ſays, that men are more liable to the moſt violent effects of this poiſonous *ſaliva* than women; yet BARON VAN SWIETEN † obſerves thereupon, that men, by ſweating through hard labor, may have diſcharged the venomous *virus*, while a perſon of a more tender, delicate, and cooler conſtitution, may feel the effects later, and die with more eaſe. An inſtance which I ſaw, will alſo comparatively ſhew the various effects of the *ſaliva* of a mad dog, on different ſpecies and conſtitutions of the ſame animal.

In *June* 1758, a mad dog ran into the court-yard belonging to the Rev. Doctor FAVELL, of *Witton*, in the county of *Huntingdon*: He bit a pointer in the heels, fought and tore two ſpaniel bitches, who then were ſuckling their puppies, a ſpaniel dog, and a greyhound bitch; after which he ran into the town, bit other dogs and a child. Three days after, near the full moon, the two bitches ſickned, their milk dried up, they had not the *hydrophobia*, but died, as it were ſuffocated on the fifth day, without violent ſigns of madneſs, or any power of running or biting; but delirious and conſtantly barking and howling in a particular hoarſe manner. On the ſeventh, the pointer grew dull, then furious, and was ſhot. The greyhound continued well, till the next full

* SAUVAGES diſſertation ſur la nature, & cauſe de la rage, p. 7, Ann. 1748.

† VAN SWIETEN Comment. tom. iii. p. 549.

moon,

moon, when ſhe became mopiſh, avoided company, and ſnarled at thoſe ſhe was generally fond of; upon which the ſymptoms increaſing, ſhe was ſtrangled. The other dogs bitten in the town as well as the child, were in no ſort affected. This verifies the opinions of all authors who have written on this ſubject, that the ſame vitiated *ſaliva* may have various effects according to the different conſtitutions of the animal or perſon bitten.

* The general opinion of the moſt celebrated authors and practitioners, is, that the poiſonous *ſaliva* of a mad dog inſinuates itſelf into the wound made by the bite †, from whence it is abſorbed in like manner with the variolous matter in the practice of inoculation, or like the venereal *virus*, and circulates with the blood; which by degrees it taints and affects the ſeveral humors, as alſo the nervous fluid, called the animal ſpirits; and by ſtimulating, cauſes frequent ſpaſmodic contractions of the nerves,

Some account for the different progreſs of this *ſaliva* in like manner with the venereal *virus*, which according to profeſſor BOERHAAVE and others, being lodged in the *cellular membrane* and there ſheathing itſelf in the oily

* PALMARIUS, De morſu canis rabidi, chap. i.
BOERHAAVII Prælectiones Academicæ, de morbis nervorum, tom. i. p. 214.
MEAD's Eſſays on poiſons. Introduct. p. 30, &ſeq.

† SAUVAGES diſſertation ſur la rage, p. 45.
VAN SWIETEN Comment. tom. iii. p. 551.

ſubſtance contained in the cells of the *membrana adipoſa* lays dormant therein, until it be abſorbed by the *lymphatics* and conveyed into the blood veſſels, wherein it circulates with the blood, and mixing with it ſooner or later, unfolds its active principles according as they have been more or leſs ſheathed. This makes no doubt, the wide difference between the ſlow advances of theſe acrimonious ſalts in perſons of a lax or leucophlegmatic habit of body, or particularly when received into the fatty ſubſtance contained in the *cellular membrane*, and their quick progreſs when inſtilled directly into the blood, which can ſeldom happen without wounding at the ſame time the nerve which accompanies the blood-veſſel; and thereby cauſing thoſe ſpaſmodic contractions and painful pulſations, which the known irritability of thoſe parts will be liable to.

Others, however, will not allow that this poiſonous *ſaliva* is conveyed by the blood, but account for all its effects from its *ſtimulus* on the nerves, which are thrown into ſpaſms, convulſions, ſtrictures, and involuntary contractions.

Doctor Nugent adopts another ſyſtem. He ſeems, in his ingenious eſſay, p. 133—139. to acquieſce in the exiſtence of a nervous fluid, commonly called the animal ſpirits, but will not allow that they are tainted by the *ſaliva* of a mad dog, or that the ſeveral ſymptoms are produced by their means: nay, he doubts, p. 147. whether, "although undoubtedly

" edly poiſoned liquors get into the circula-
" tion, it is not probable that they carry none
" of their malignity with them, but leave it
" all among the fibres of the part they firſt
" infect." And throughout the whole eſſay, he endeavors to account for all the ſymptoms ariſing from the bite of a mad dog, by the action of the *virus* on the nervous fibres, whoſe vibrations and oſcillatory motions are firſt by the nibbling poiſon thrown into *ſpaſmuli*, which being repeated, are progreſſively continued from one nerve to another, till they are put into violent contractions and affect ſome or other of the *viſcera*.

It is not my deſign, by any means, to enter into a fruitleſs controverſy. The opinions of PALMARIUS, profeſſor BOERHAAVE, and doctor MEAD, are ſufficient authorities for me; and experience juſtifies their aſſertion, that the nervous fluid, whatever it may be, is generally tainted in the fever raiſed by the bite of a mad dog. It would be endleſs to quote all they have ſaid; I ſhall therefore only refer the reader to profeſſor BOERHAAVE's, and doctor MEAD's thoughts, concerning the nervous fluid or animal ſpirits *. And with regard to the effects of the bite of a viper, or the puncture of a nerve or tendon, they may vary greatly

* BOERHAAVII Aphoriſmi & prælectiones academicæ de morbis nervorum.
MEAD, Eſſay on poiſons, loc. cit.

in

in their conſequences*; as poſſibly the firſt may be deſtitute of putridity, and yet have a ſufficient acrimony to throw the whole nervous ſyſtem into the ſame fatal convulſions as the puncture of a conſiderable nerve, or tendon commonly doth. But putrid diſeaſes in general, and particularly thoſe of the moſt active kind, as the plague, the ſmall-pox, and *Lues Venerea*, are known to diffuſe themſelves all over the human body, and to affect diſtinct emunctories according to the different ſhape, figure and ſize of their acrimonious ſalts. Thus the peſtilential matter affects the larger glands, as the *parotid*, the *axillary*, and *inguinal*; the ſmall-pox, thoſe of the ſkin; and the *Lues Venerea*, the teſticles, the *inguinal*, and *ſalival* glands.

The putrid *ſaliva* of a mad dog has been compared long ago to the venereal *virus*, in its manner of being communicated and in its progreſs, by ALEXANDER MASSARIAS †, profeſſor of PADUA, as profeſſor ASTRUC records.

The more the ſalts in theſe putrid diſeaſes are exalted and volatilized, the more violent is their effect on the nervous ſyſtem, and the ſooner is the nervous fluid tainted.

But to proceed to the ſymptoms incident upon the bite of a mad dog. I have already

* Venenum peſtilens, varioloſum, rabioſum, alio modo communicatur, quam viperinum. BOERHAAVII prælectiones academicæ de morbis nervorum, p. 214.

† ASTRUC de morbis venereis, p. 842.

men-

mentioned, that the pain and cure of the wound depended on the texture of the parts bitten; the ſame may be ſaid of the bite of a mad animal as of an angered one; for the bites of mad dogs have been commonly found to heal without difficulty; indeed in ſome habits of body they ſcab over, and do not heal ſo firmly.

The firſt effects of a poiſonous *ſaliva*, appear rarely before the third day; ſometimes not till the thirtieth or fortieth, and ſome inſtances are related of the poiſon laying dormant two or three years; nay longer, and then breaking out *. It generally ſhows itſelf at the full, or new moon †, when a ſharp pricking pain is felt in the part where the bite was given, although the wound ſhall have been healed ſome time. Unleſs ſome nervous or tendinous part be bitten, the pain at firſt is not very violent, it ſoon however aſcends, and ſpreads itſelf all over the muſcles of that limb, cauſing a wearineſs; then darts up towards the throat and heart, and occaſions a weight on the *præcordia*, and a great oppreſſion, a continual inquietude attended with ſighings and ſobbings, a dullneſs and love of ſolitude. The perſon's mind begins now to be affected, he grows peeviſh and angry, and in his ſleep he is diſturbed, reſtleſs, and frequently awakened by frightful dreams. In the ſecond ſtage of this diſeaſe

* Etmulleri opera, tom. i. p. 504.
† Mead's Eſſay on poiſons, p. 152, 153.

all

all the above ſymptoms increaſe; then come on flushing heats, a burning heat at the pit of the ſtomach, *nauſea*, vomiting of dark and viſcid matter, particularly a deep colored and porraceous bile; a fever attended with horrors, tremblings, *ſubſultus tendinum*, and convulſions. A great thirſt, dryneſs of the throat, hoarſneſs, difficulty of ſwallowing liquids, but a poſſibility of admitting ſolids, a copious diſcharge of the *ſaliva* like froth, which the patient avoids ſwallowing *, a coſtiveneſs, priapiſms, or *furor uterinus* and *delirium*.

In the laſt ſtage, the patient is in the greateſt fury; his madneſs increaſes with every exacerbation, and the remiſſions are attended with a cold ſweat, as the pulſe and fever fail: yet in the whole courſe of his fury he continues in his ſenſes, and is ſo far from being miſchievous or attempting to bite, that he is afraid of doing harm, and cautions the by ſtanders, leſt he ſhould loſe his ſenſes and prove hurtful to them †.

His

* Lister exercitationes medicinales, exercit. iii^a. p. 114—117.

† Authors do not entirely agree in this point; but as the generality are of opinion, that the unhappy perſons laboring under this diſeaſe are not miſchievous even in very hot climates, I think proper to quote their ſeveral ſentiments, that through fear of accidents ſuch patients may not be deſerted, want proper aſſiſtance, nor be put to a violent death, which is no leſs than murder, if the cruel cuſtom of ſuffocating them ſhould ſtill prevail in any civilized country, and for which there can be no warrantable plea, ſince inſtances

are

His appearance now grows ſhocking to behold. His eyes are inflamed, ſtaring, and wild; the tears flow involuntarily, his noſtrils are ſpread, his mouth open, his tongue hanging out, rough and black; his voice extremely hoarſe, his thirſt intolerable, terrified at the ſight of any liquid, particularly of water, and indeed of any ſhining or pellucid object, as any thing white, a looking-glaſs, &c. He froths at the mouth, endeavors to ſpit at the by-ſtanders. Such is the ſenſibility of the nerves, that a glaring light, the leaſt noiſe, or the ſmalleſt breeze of cool air, throws the patient into horrors, ſpaſms, and convulſions. The laſt ſigns are, an extenſion and rigidity

are produced of perſons being cured who had the *hydrophobia* ſtrongly upon them.

Quibus addo, quod equidem neminem hactenus vel audiverim latrare vel viderim mordere. TULPII Obſerv. Medic. lib. i. cap. xx.

Doctor MEAD ſays, that ſometimes in their rage and fury they attempt doing all poſſible miſchief to their moſt beloved friends and relations, but moſt commonly are melancholy, reſigning themſelves to death. Eſſay on poiſons, p. 133.

Doctor DESAULT declares, that of all the perſons whom he has ſeen ſeized with this madneſs, and that have even died raving, not one ever attempted to bite; nor did any counterfeit the actions or noiſe of animals, which had bit them. Diſſertation ſur la Rage, p. 322.

Monſieur DU CHOISEL ſaw only one inſtance of a young man who bit two women in the heighth of the fury. Method. p. 21. May not the heat of the climate, and conſtitution of the Indian, have produced this unuſual effect? However, it is beſt to be upon one's guard in ſuch caſes.

of all the nerves*, a total inability of ſwallowing liquids, a dread not only at the ſight, but even at the mention of them, a *vertigo*, general convulſions, and death; which, from the time this fatal diſeaſe is manifeſt, happens moſtly on the third day, although it ſeldom exceeds the fourth.

In ſuch bodies as have been opened after this diſeaſe, it has appeared, that all the organs of deglutition are inflamed, that the ſtomach was filled with ſlimy and viſcous matter, mixed with bile of a dark and porraceous color; that the gall-bladder was full of deep green-colored bile, the *pericardium* generally quite dry, the lungs greatly diſtended with blood, the heart, and alſo the arteries, full of a thin fluid blood, which doth not coagulate in the air; the veins empty, and all the membranes of the brain, *cerebellum*, *medulla ſpinalis*, and *viſcera*, dry.

From the above-mentioned view of the bodies, and a conſideration of the ſymptoms of this diſeaſe, doth it not appear, very plainly, that the putrid fermentative *ſaliva* of a mad dog circulates along with the blood †, acts as a powerful *ſtimulus* on the nerves and nervous coats of the arteries, renders the ſaline particles of the blood and humors more active and acrid, keeps the blood in a diſſolved ſtate,

* *Hydrophobia* homini evenit cum diſtenſione nervorum. LISTER Exercit. iii[a].

† MEAD's Eſſay on poiſons, p. 140.

is

is discharged by the salival glands down the *œsophagus* into the stomach, causing, in its course, a dryness, tension, pain, and inflammation, and throwing all the nerves, by its irritation, into spasms and contractions, which produce the difficulty of breathing, and of swallowing liquids? That in a state of putridity the nervous power being destroyed, the heart and arteries can no longer contract, and therefore are found full of blood; and that the acrimony of the bile, being increased by long fasting, and want of dilution *, adds to the violent effects on the first passages, and helps also to affect the brain, and, consequently, the whole nervous system?

* Mr. HOLLWELL, in his Narrative of the deplorable death of the gentlemen suffocated at CALCUTTA, describes very strongly the terrible effects arising from the absorption of the bile into the blood; the circulation of which was raised by the tumultuous passions of the mind, rage and despair, and the bilious salts being highly volatilized for want of air to breathe, and of liquids to dilute during the profuse sweats of the confined persons, brought on a *delirium*, loss of strength, and, to such as survived, putrid fevers.

SECTION

SECTION II.

Of the Hydrophobia.

COELIUS AURELIANUS, a physician of the methodic sect, who lived, as Monsieur LE CLERC records * from REINESIUS, about the fifth century of the Christian æra, is the first author who has written largely of the *hydrophobia*, and described all the symptoms of it, with any tolerable exactness. In his time it was matter of great dispute among the physicians, whether the *hydrophobia* was known to the ancients, or was a new disease? The reasons alledged on both sides, may be seen at length in his treatise *De Morbis acutis* †. He is clear in his opinion in favor of the ancients; intimating, that although HIPPOCRATES does not particularly treat of this disease, yet he may be supposed to have alluded to it in the following sentences ‖.

Οἱ φρενιτικοὶ ἐραχυπόδαι, ψοφῳ, καθαπτόμενοι, τρομώδεες.

* LE CLERC Histoire de la Medecine, p. 556.

† COELIUS AURELIANUS, lib. iii. cap. xv.

‖ HIPPOCRATES a FOESIO, lib. i. Prædict. p. 68. & coacarum prænotionum.

VAN SWIETEN Commentar. tom. iii. p. 536.

Phre-

Phrenitici parùm bibunt, ex levibus ſtrepitibus facilè irritantur, ac percelluntur, tremuli ſunt.

Οἱ φρενιτικοὶ ὀλιγοπόται ψοφῳ, καθαπτομενοὶ τρομώδεες, ἢ σπασμώδεες.

Phrenitici parùm bibunt, ex levibus ſtrepitibus facilè irritantur, tremuli ſunt, aut convulſionibus tentantur.

Perſons in a phrenzy drink very little, are diſturbed and frightned, tremble on the leaſt noiſe, or are ſeized with convulſions.

ARETÆUS *, in treating of the cure for phrenitics, mentions the very ſame.

† The methodics ranked all diſeaſes under two claſſes; thoſe which were cauſed by ſtricture, or tenſion, and thoſe cauſed by relaxation. COELIUS AURELIANUS places the *hydrophobia* among the diſeaſes cauſed by ſtricture, or tenſion; and ſays, "That it is poſſible for the ſame paſſion to be produced in bodies, without any manifeſt cauſe, whenever a ſtricture is ſpontaneouſly occaſioned, like that which ariſeth from poiſon ‖."

* ARETÆUS De Morbis acutis, edit. BOERHAAVII, lib. i. p. 72. C. Ibid. p. 77. B.

† LE CLERC Hiſtoire de la Medecine.

‖ Eſt præterea poſſibile ſine manifeſta cauſa, hanc paſſionem corporibus innaſci, cum talis fuerit ſtrictio, ſpontè generata qualis a veneno. COELIUS AURELIANUS, lib. iii. cap. ix.

There is a great difference to be made between the difficulty of ſwallowing ‡ which ariſes from a relaxation, and that which is known to attend the *hydrophobia*. In paralytic diſorders frequently attending upon old age, and in ſome ſorts of *anginæ*, neither ſolids nor liquids can be allowed to paſs; and the very attempt has endangered the patient, who has been almoſt ſuffocated. But to this * difficulty of ſwallowing, in the *hydrophobia*, a real † dread of water ſucceeds, particularly in thoſe conſtitutions, and in that advanced ſtate of the diſeaſe, when the ſtricture or tenſion is ſo great, the acrimony ſo conſiderable, the inflammation ſo high, the fever ſo ſtrong in its exacerbations, and the irregular ſpaſms of the nerves ſo far increaſed from partial contractions to general convulſions, that the fear of ſuffocation is become continual; in which caſe alſo it appears plainly, that the patient's mind is as much affected as the body.

‖ Coelius Aurelianus has written a whole chapter to prove, that the *hydrophobia* is

‡ Medical Eſſays, vol. i. art. xxvii. Dr. Gilbert Waugh's account of Hart's daughter.

* Δυσκαλάπωσις.

† Ὑδροφοβία.

‖ Coelius Aurelianus, lib. i. cap. xiii.

All authors agree, that the whole body is affected, but more particularly the ſtomach and belly, and the head by conſent. The *cardialgia*, *ſingultus*, and in ſome the retention of the excretions, plainly ſhew it.

Etiamſi

is a paſſion of the body, not of the mind. That it is the effect of the bite, cannot in the leaſt be doubted; but, moreover, that the mind alſo partakes of this effect, is as undoubtedly true: and ſuch is the alteration to be obſerved therein, that either dejection, melancholy, or furious madneſs, are the conſtant attendants of it; which ſhews, that the nerves and *ſenſorium commune* are ſtrongly affected.

But the *hydrophobia* is not always a concomitant ſymptom, although the diſeaſe excited by the bite of a mad dog ſhould end fatally. The pain, fever, *delirium*, and convulſions, have appeared ſucceſſively, and deſtroyed the patient on the third day, without the leaſt ſign of the *hydrophobia*, as Doctor MEAD acquaints us *. And profeſſor BOERHAAVE attributes " the variety of appearance and effects of this " contagious *ſaliva*, both with regard to the " time it breaks out, and its various ſymptoms, to the ſeaſon of the year, the different degree of the diſeaſe in the furious " animal, the conſtitution of the perſon " bitten, bilious habits being the moſt eaſily affected, phlegmatic and dropſical the " leaſt; and alſo to the ſeveral kinds of

Etiamſi rabie correptis, omnia excrementorum genera, ut plurimùm retineantur. In uno tamen vidi, maximam, & ingentem urinæ copiam, excretam, ſine ullo ægrotantis ſenſu. LISTER Exercit. p. 154.

* MEAD's Eſſays, p. 147.

" food, and to the medicines which are ad-
" miniſtred *.

The *hydrophobia* is a ſymptom common to other diſeaſes †; it frequently attends the phrenzy, and eſpecially in hot countries. The ſentiments of HIPPOCRATES and ARETÆUS have already been quoted.

‖ COELIUS AURELIANUS defines the phrenzy to be a diſorder of the *meninges*, or membranes of the brain. Theſe membranes ſerve as coverings to the nerves, and of courſe cannot be affected, without communicating the diſeaſe, in ſome degree, to the brain, and to ſuch of the nerves as are contiguous to the ſeat of the complaint; or by their connexion and ſympathy are liable to the ſame impreſſion: whatever, therefore, cauſes an irritation on the *meninges*, an inflammation, a fever, ſpaſmodic contractions, or tenſion; whether it be an ardent fever raiſed by the obſtruction of perſpiration, or by a tranſlation of matter, called *metaſtaſis*, or a ſudden ſtoppage of the *lochia*, or *menſes*, or by any ſudden paſſion of the mind, ſuch as anger, or fear; any of theſe cauſes may produce a phrenzy; and from a communication of the ſpaſmodic con-

* Pendet vero hæc diverſitas, a calore tempeſtatis anni, a vario gradu morbi, in animali mordente, a temperie hominis morſi, quum bilioſi, eo faciliùs vergant, pituitoſi, & hydropici contra a diverſo victu, medicamentis adhibitis. BOERHAAVII Aphoriſm. 1137.

† VAN SWIETEN Comment. tom. iii. p. 537.

‖ COELIUS AURELIANUS, lib. i. cap. i. & ſeq.

vulſions,

vulſions, may, to the other ſymptoms, add alſo the *hydrophobia*.

In theſe temperate climates, diſeaſes of ſo violent a nature are not ſo frequent as in hot countries; and whenever they do appear, their progreſs is not ſo ſpeedy; which may be the reaſon why HIPPOCRATES had not an opportunity of ſeeing the intire *hydrophobia*, either in phrenitics, or perſons bitten by mad animals; the illneſs deſtroying them on the firſt appearance of the difficulty of ſwallowing; whence they were called *βραχυπόται*, *parvibibuli*. The few inſtances, therefore, which are met with in theſe climates, it cannot be improper to relate. The appearance of that terrible ſymptom in ſeveral diſeaſes, and the inſtances, however few, in which remedies have been applied with ſucceſs, may take off from that univerſal dread, and ſhew that it is not always incurable.

In *April* 1758, a farmer and graſier, about 40 years of age, of a ſanguine conſtitution, was ſeized with a violent pain a little above the *pubis*; an inflammation on the neck of the bladder, and total ſtoppage of urine, enſued. He was bled, purged, and lenient diuretics were given him. The ſymptoms abated upon a diſcharge of purulent matter, which ſhewed that the inflammation had terminated in an abſceſs. On the third of *May* the man, having ſome evenings before taken cold by going after ſome cattle in the wet, was again ſeized

with the ſame ſymptoms, but to a greater degree of violence; the ſuppreſſion of urine was alſo total, and to a high fever and *delirium* ſucceeded a phrenzy, and ſuch a furious madneſs, as to equal the moſt diſordered perſon. In this ſituation I found him when Mr. LITCHFIELD, an ingenious ſurgeon and apothecary at *Ramſey*, in the county of *Huntingdon*, firſt ſent for me. To all the ſigns of madneſs of the moſt miſchievous kind it muſt be added, that in his lucid intervals, which were chiefly in the morning, he could not on the fifth and ſixth of *May* ſwallow the leaſt drop of liquid: he grew outrageous at the preſenting it, ſpitting in the faces of his neareſt relations, as well as others, and telling them they meant to choak him. By plentiful and repeated bleedings, and emollient clyſters, bladders half filled with warm water and milk, and applied to the *pubis*, fomentations, *pediluvia*, ſhaving his head, and waſhing it with a lotion of *elder-flower* water with *vinegar* and *camphor*, the convulſive ſpaſms and the phrenzy were abated. Oily and *terebinthinate* clyſters were injected, and when a paſſage could be had, lubricating, cooling, laxative, and diuretic medicines were adminiſtred, which removed the complaint. But, as he had been unavoidably brought low by the repeated evacuations, it was a long time before he recovered a ſettled ſtate of mind; which, however, returned perfectly, by means of the *cortex Peruvianus*, with proper reſtoratives,

ratives, and change of air. At firſt the blood, I ſaw drawn from this perſon, was very black as it ran out; when cold, the grumous part was of a looſe texture, and the ſerous part an entire cake of purulent jelly containing it. This appearance in the blood, was certainly a proof of the *metaſtaſis*, or tranſlation of matter from the bladder, which had cauſed all the terrible effects before related.

Doctor MEAD quotes from SCHENCKIUS, that the "*hydrophobia* has been remarked in "malignant fevers;" and from the *Ephemerides Germanicæ*, that "a melancholy has "ended fatally by this ſymptom." And this learned and experienced phyſician has ſeen "the *hydrophobia* laſt many hours in an hy-"ſteric diſorder, and in a caſe attended with "fits of a palpitation of the heart, wherein "the violence of the ſymptom ſeemed not to "differ from the true *hydrophobia*."

That this ſymptom is common to nervous diſeaſes, is alſo Doctor MEAD's opinion *. The ſuffocation called the *globus hyſtericus*, and ſo frequently met with in hyſterical caſes, has been produced, and increaſed to the *hydrophobia*, upon a ſuppreſſion of the *menſes*, or of the *lochia*. I attended a young girl of ſixteen years of age, of a plethoric conſtitution, who from a ſuppreſſion of the *menſes*, on their

* MEAD, Eſſay on poiſons, p. 147.

firſt imperfect appearance, had all the hyſterical ſymptoms, to the higheſt degree: they were followed by a *mania*, which laſted ſome days. During this, ſhe had a difficulty of ſwallowing *, and the *hydrophobia* two or three days, which was removed by plentiful bleedings, both in the foot and arm, and by *ſemicupia* and glyſters; but until the courſe of the *menſes* became regular, ſhe was periodically diſordered every month, ſo that ſhe could not be deemed rightly in her ſenſes till that time.

I ſhall have occaſion hereafter to mention another caſe, owing to the ſudden ſuppreſſion and retention of the *lochia*, when I come to ſhew the fatal conſequences ariſing from the turbulent paſſions of the mind.

In the Medical Eſſays, Doctor INNES has recorded, very circumſtantially, the caſe of a young gentleman who had an inflammation of the ſtomach, attended with the *hydrophobia* †. Although the young lady who was under my care, and of whom I have given an account in the Philoſophical Tranſactions ‖, had not only a difficulty of ſwallowing, but a total ſtoppage, ſo that the leaſt drop of any liquid could not be admitted into the ſtomach,

* See Doctor ECCLES's Account of a great difficulty in Swallowing and *Tetanus*, in the Medical Eſſays, vol. v. part ii. p. 472.

† Medical Eſſays, vol. i. art. xxix. p. 283.

‖ Philoſophical Tranſactions, N° 495.

nor,

nor, at times, far into the *æſophagus*; yet ſhe had no dread at the ſight of water, or of any fluid. The evacuations which ſhe had undergone, before I attended her, might have prevented that degree of acrimony which was the cauſe of the *hydrophobia* in Doctor INNES's caſe, where the cure was at length effected by repeated bleedings, and a ſpontaneous vomiting.

* In that kind of catarrhal flux from the ſalival glands, and diſtenſion of the lymphatic veſſels, which, from the ſeat of the diſorder, the *bronchi*, is called the *brancks*, or more uſually the mumps, and chiefly affects young perſons about the age of puberty; upon taking cold, or an improper treatment, the ſerous matter is often tranſlated from the throat to the teſticles, which grow hard, and the *ſcrotum* is much enlarged, and becomes painful, through its weight: unleſs this ſymptom be alſo carefully attended to, a tranſlation of acrid matter is ſometimes, by a ſudden *metaſtaſis*, thrown upon the membranes of the brain, and this tranſlation is followed by a fever, *delirium*, phrenzy, ſpaſms, and convulſions; which, if not timely remedied, will prove fatal. Such a ſuffocation as the *globus hyſtericus*, is generally obſerved to be one of the ſymptoms;

* HOFFMANNI Conſultationes Medicinales, tom. ii. caſus cii. De teſt um conſenſu cum cerebro.

and

and from the ſpaſmodic contractions of the muſcles of the throat, a difficulty of ſwallowing renders ſuch patients what HIPPOCRATES calls them, βραχυπόται, *parvibibuli*, ſmall drinkers; whenever this diſeaſe, as COELIUS AURELIANUS obſerves, is attended with a ſtricture, or tenſion, not in caſe of a relaxation: both which different effects of ſtricture, tenſion, or relaxation, appear in this illneſs. In ſouthern climates the tranſlation oftner occurs than in northern countries. The firſt time I ſaw it to any conſiderable degree, was in the ſpring of 1760, when it appeared like an epidemical diſeaſe affecting the private ſoldiers, and chiefly the married men, belonging to both the battalions of the *Eſſex* militia, quartered in the county of *Huntingdon*, during the months of *February*, *March*, and *April*, particularly. The ſeaſon, no doubt, prevented the violence of the ſymptoms, which would neceſſarily have followed in a hotter time of the year. I viſited ſeveral with Mr. GORDON, who attended as ſurgeon to the firſt battalion: none died, although ſome were in a high fever; and one of my private patients was delirious. Agreeable to this, is the doctrine of the venerable HIPPOCRATES*, concerning the ſympathy between ſeveral parts of the human body; and TULPIUS, on another occaſion, not very fo-

* HIPPOCRATES Περὶ τροφῆς De Alimento.

reign

reign to the preſent inquiry, gives the following excellent caution *.

" Let it therefore be carefully inquired by " phyſicians, what kind of humor nature ex- " pells, and let them be ſtrictly on their guard " that it doth not overflow, leſt it ſhould ſhift " from a place of little moment, to a more " noble and conſiderable part."

The intimate and ſtrict connection between the body and the mind, although inexpreſſible to our limited conceptions, is nevertheleſs ſo evident from its effects, as not in the leaſt to be doubted. Thus the diſeaſes of the body influence the operations of the mind, and the ſeveral paſſions of the mind, either promote, diſturb, ſuſpend, or deſtroy the natural functions, and the ſecretions of the human body, according to the different powers the ſeveral paſſions have allotted them. Joy dilates, exhilarates and circulates the blood with the moſt agreeable ſenſation. Grief relaxes, debilitates and ſuſpends the neceſſary ſtreams of life. The tender paſſions of love and friendſhip warm the blood, and give it freſh vigor. The turbulent paſſions, on the contrary of wrath and fear contract the veſſels, and hurry the circulation of the blood in ſo violent a manner, as to throw the whole frame into confuſion.

* Inquirendum itaque curioſè, medicis, in naturam humoris a natura expulſi, & cavendum obnixè, ne facili regurgitet, a loco ignobili, in partem principem. TULPII Obſerv. medicinal. lib. i. cap. ix.

When-

Whenever theſe two wrath and fear are raiſed together, there is a terrible ſcene produced, if an inſtantaneous death doth not end the tragedy by a ſudden apoplexy; a palſy, a phrenzy, or epilepſy, follow in ſanguine conſtitutions; convulſions, tremors, *ſchirrus*, cancers and many weakneſſes attend thoſe of a lax and cacochymic habit of body. But the limits of this eſſay will not allow me to expatiate farther on theſe particulars, I ſhall therefore confine myſelf to the remarking only by a very ſtrong inſtance the fatal effects of the violent paſſions of † wrath and fear operating alternately and jointly in the ſame perſon.—An inſtance in which not only a phrenzy, but what is much to our preſent purpoſe, a total alteration of the fluids, and an *hydrophobia* were produced.

A young woman about 27 years of age, of a fair complexion, delicate conſtitution, good habit of body, of a lively and ſweet temper, but rather of a timorous diſpoſition; in childbed of her fourth child, was on the eighth day from her delivery, in a fair way of recovery, and receiving the uſual congratulations of her female acquaintance. Among other viſitors came a relation with whom there had been ſome fa-

† Doctor GEORGE BAKER in his diſſertation *De affectibus animi* mentions the ſeveral opinions of poets, and of philoſophers ‡, anger was looked upon as a temporary madneſs, and the ſpaſmodic contractions through fear are elegantly deſcribed ‖.

‡ GALEN, HORATIUS, lib. i. Epiſt. ii. Ira furor brevis eſt.
‖ LUCRETIUS, &c.

mily,

mily diſputes. This perſon very unſeaſonably revived the quarrel, and after the moſt aggravating provocation inſulted the lying-in woman with the moſt bitter invectives and moſt opprobrious language. The by-ſtanders fearing that even words would not ſatisfy her revenge, with great difficulty removed her out of the room; but irreparable miſchief was already done. Anger and fear had been raiſed ſo ſtrongly in the mind of the patient, that unable to retort any longer to the revilings of her adverſary ſhe fell into a violent hyſteric fit, little inferior to the higheſt degree of an epilepſy *.

The *lochia* inſtantly ſtopped, the milk diſappeared, a ſuffocation, fever, and phrenzy enſued. Early next morning I was ſent for, and immediately had her blooded plentifully in the foot, *pediluvia* and clyſters were uſed, and deobſtruent boluſſes given; although ſhe attempted ſeveral times, not a drop of liquid could be ſwallowed on account of the frequent ſpaſmodic contractions. Bliſters were applied to the thighs and legs; the head was ſhaved and waſhed with a lotion of *camphorated vinegar* and *elder flower* water, but all my endeavors proved ineffectual. The tenſion was ſo

* Nonnulla etiam excrementa quæ in utilitatem vitæ noſtræ inſtituit providens natura ſuſcepto metu, ſiſti protinus, & ceſſare, res eſt medentibus nimium familiaris. Notum eſt, nimis quam gravis ſit ille puerperæ, lactanti que, abortus ſcilicet inde naſci, cum læthali hæmorrhagia, ſiſti lochia, coire lac, &c. BAKER de affectibus animi, p. 17.

great,

great, that neither opiates, *camphor*, nitre, nor repeated applications of bladders filled half full with warm water and milk, and applied to the *hypogaſtric* region could relax. The nervous contractions increaſed ſo faſt, that general convulſions ſucceeded with ſuch perturbations of mind upon their remiſſion, that the leaſt ſight of a pellucid object, the light, the leaſt noiſe or ruſtling of cloths alarmed her with the fear of her relations return. Thus ſhe continued three days. A few hours before her death ſhe recovered her ſenſes, but could neither ſwallow nor bear the ſight of liquids; ſhe then knew me, and told me that ſhe doubted not I had done my utmoſt to ſave her, but that it was to no purpoſe; and laying her hand upon her heart, added, that ſhe was wounded too deeply there.

A ſymptom not to be forgotten, and which ſhewed the violence of the fever, was, that no urine was diſcharged but by force, at the time of her convulſions when they were the ſtronger, and then it was as a jelly of the moſt tenacious kind. The celebrated profeſſor HOFFMANN *, has recorded the violent effects of anger and fear in ſeveral of his obſervations, and imputes the appearance of the various ſymptoms to the irregular circulation, and

* HOFFMANNI Conſultationes medicinales. De terroris indole, tom. i. p. 20. caſus vii. De terrore in puerperiis, tom. i. p. 196. caſus xxxvii. De effectu terroris, & iræ, tom. ii. p. 225. caſus xlvii, &c.

want of a due ſecretion of the fluids, which the paſſions of the mind ſuddenly bring on; and his preſcriptions all tend towards the removing the tenſion and obſtruction.

Thus from the ſeveral inſtances produced from authors and others juſt related, the *hydrophobia* appears to be a ſymptom common to ſeveral diſeaſes, and particularly in caſes attended with ſpaſmodic contractions of the nerves of the throat, and increaſed by the violent paſſions of the mind, chiefly anger and fear. The ſight of liquids or of any pellucid object, equally act on the unhappy perſon, whatever be the cauſe that produces the pain; for the admiſſion of liquids in the leaſt quantity conveys down the *æſophagus* into the ſtomach, the putrid, acrid *ſaliva*, which irritates the upper orifice * and nervous coat of the ſtomach, and the *æſophagus* already inflamed, the *mucus* being dried up by the conſtant ſwallowing of the acrid particles; the ſight alſo of a glaſs, of a white wall, or a glaring light ſtriking ſtrongly upon the *ſenſorium commune*, awakens the remembrance of the accident which has happened, and revives all the terrors which the bite of a mad animal had occaſioned †. The

* At ſalivam deglutire, ei horrendum fecit, perinde ac ſi mortem ipſo momento inferret. Vide hiſtoriam JACOBI CORTON in exercit. iii^a. LISTERI p. 117.

† There be ſights that are horrible, becauſe they excite the memory of things that are odious and fearful. BACON's ſylva ſylvarum experiments touching, pleaſing or diſpleaſing the ſenſes, cent. vii. § 700.

hydro-

hydrophobia *, therefore, is a conſtant attendant upon ſuch acute diſeaſes, as are dangerous through ſtricture and tenſion; and more particularly in the bite of a mad dog. Whenever this ſevere ſymptom appears, it is the more fatal; the greater the tenſion and inflammation, the longer the ſymptom has laſted; and from the different rigidity of the fibres, it is by far more difficult to remove in men than women. The ſigns of its approach, and the ſymptoms that uſually attend it, have been ſufficiently deſcribed in the former ſection.

* Hydrophobia eſt morbus acutus. LISTER exercitatio iii^a. p. 106.

SECTION

SECTION III.

Of the different Methods of Cure.

THE different methods of cure, for the effects ariſing from the bite of a mad dog, are either rational or empirical.

By the rational is to be underſtood, the internal adminiſtration or external application of ſuch remedies; which by experience, are found to remove or prevent the complaint in certain conſtitutions and circumſtances of the diſtemper, and whoſe efficacy, may in a great meaſure be accounted for, by arguments founded upon obſervation, and according to the known power of medicines without the leaſt preſumption of their being infallible.

By the empirical cure, I underſtand the indiſcriminate uſe of any *noſtrum* or known medicine, in all degrees of the ſame illneſs, adminiſtered or applied to all conſtitutions and ſexes, and in all ages, with a poſitive aſſurance of an infallibility, and whoſe operations are not only of a violent, and dangerous, or wholly inſignificant nature, but will neither bear the teſt of examination by reaſoning, nor a ſcrutiny into their ſucceſs, the caſes being frequently miſrepreſented, or the fatal conſequences ſuppreſſed.

It muſt be owned, that mere accident has produced both in the early days of practice; and medicine hath gained great advantages from the obſervation of, and a due attention to, the *juvantia* and *lædentia*. Thus a rational method of cure, took its riſe from accident, preſumption and empiriciſm.

Was the world, with all its improvements in this enlightened age, ſufficiently guarded againſt impoſitions, there would be no longer a neceſſity of dwelling upon the conſideration of ſuch abſurdities, as are ſo many reproaches to the human underſtanding; but while through tradition, plauſible authority, or preſumptuous practitioners, mankind is ſtill deluded, it behoves every one, who has the welfare of his fellow-creatures at heart, to point out to them the dangers which they run, by confiding in an empirical rather than a rational method of cure.

The plea of empirics is, that ſeldom doth any diſtemper appear in any perſon, as deſcribed by any ſyſtematical writer, and therefore facts are only to be relied on. Certainly, many circumſtances may occur, to vary the appearance of an illneſs in different conſtitutions and ſituations; but whoever is furniſhed with a ſummary of the ſeveral ſymptoms of a diſeaſe, will be the readier to relieve the diſtreſſed, than by following indiſcriminately the ſame method in every caſe, becauſe he ſaw it ſucceed in one.

Syſtems

Syſtems unſupported by facts, are fruitleſs *hypotheſes*; but when reaſon and experience agree, although they will never be infallible, yet they will jointly afford the greateſt probability of ſucceſs.

Both the rational and empirical methods, may be divided into the preventive or the actual cure. I ſhall begin with the empirical method.

And firſt, the moſt dangerous and abſurd notion ſtill prevailing in ſome diſtant ages, is, that if a perſon bitten by a mad dog, can immediately get the liver of the dog, and eat it raw or broiled, it is a means to prevent the progreſs of the diſeaſe. Every author, now a days, judiciouſly pronounces, that ſuch a diſtempered liver is neither good for food or phyſic †, the bile contained in it being of the moſt vitiated kind; and although it has not yet been diſcovered, whether ſuch bilious ſalts admitted into the ſtomach have only like other putrid humors produced a *nauſea* and *diarhœa*; or, if paſſing into the blood, they have excited the ſame madneſs, as the bite of a mad dog; one may venture to declare an utter abhorrence of ſuch food, and that it can be of no other account, than as it may procure ſome quiet to the patient's mind, by laying aſleep for the preſent his apprehenſions of the uſual conſequences.

† Mead's Eſſay on poiſons, p. 158.

These notions which Doctor LISTER calls the superstitious fancies of ancient times, seem to prevail still in *Ireland*, among the lower sort of people, and to obviate the repetition of such a shocking scene, as was related in a letter from *Gallaway*, inserted in the public news-papers, and dated the 11th of *February* 1760, I have been the more serious to explode such an absurd practice. I will relate the material circumstances of the horrid tragedy in the most tender manner possible.

"A gentleman in the neighbourhood of "*Slave Muree*, in the county of *Gallaway*, "writes word. That a young man, who had "been bitten by a mad dog, almost three years "before, was married to a young woman of "*Slave Muree*, and the very night of their nuptials, the relations alarmed at the cries of "the woman, burst into the room and found "him with her liver in his teeth. A knife "in his hand, and his wild aspect not to be "described, would not permit any one to approach him; and to prevent further murder, his own brother was tempted to shoot "him; but he was secured by a noose thrown "over his neck, and tied down."

This case plainly shews the necessity of putting a stop to such a dangerous notion; for no doubt, his imagination being heated, and the latent *virus* breaking forth, brought to his mind the representation of the dog, whom in the rage of phrenzy, he thought he was destroying;

and that, with the prepoſſeſſion of curing himſelf, by eating of his liver.

The curd of a ſucking puppy's milk, or the hair of the mad dog intended as a cure for the wound he gave, are applications to be laughed at.

The next ridiculous and idle tale, is the boaſted effects from the preſenting a *Hyæna*'s ſkin to the perſon bitten, or tying a piece of the ſame creature's ſkin in a linen rag on the wounded limb. The notion, it is ſaid, takes it's riſe from an averſion dogs have naturally for *Hyænas*; from whence it is ſtrongly conjectured, that this canine diſtemper ſhould be removed on the ſight or touch of the *Hyæna*'s ſkin, and the venom at once frighted away by this ſort of amulet.

The root of the *cynorrhodon*, the dog-roſe, is now thought of no efficacy, although PLINY extolled it much; nor is much ſtreſs laid on the other properties of the *ſpongia cynorrhodi*, the ſponge of the *dog roſe*; but this ſhall be mentioned in ſpeaking of the rational proceſs of cure.

Among the empirical jumbles not to be truſted to, are the ſeveral *theriaca* *, confections, and ſpecific antidotes hitherto recommended, to expell this poiſonous venom, and which would much more ſpeedily and effectually aſſiſt the miſchievous effects of it.

Nor are family *noſtrums* of any kind to lull any perſon into a fatal ſecurity, for they are

* See Doctor HEBERDEN's Eſſay on the *Mithridatium* and *Theriaca*.

generally nothing more than mutilated copies of preſcriptions tranſcribed full of errors, and frequently directed for an oppoſite intention, notwithſtanding the ſanction of being carefully handed down, from year to year, in the ſame families.

I now proceed to the rational cure. This conſiſts in ſuch external applications, or internal remedies, as are adminiſtred, either to prevent the progreſs of the inoculated *ſaliva*, that it may not ſpread it's infection, or to remove the bad effects of the poiſonous *virus*, when it has already inſinuated itſelf ſo far, as to produce the greateſt miſchiefs, and endanger the patient's life.

In the examination of the ſeveral methods directed, I ſhall endeavor to account for the intention of each practice.

Firſt, In order to extract the *ſaliva* which by the bite may have been depoſited in the wound. The ancients adviſed the application of ‖ cupping-glaſſes †, to draw out the *ſaliva*; and made a plentiful diſcharge of blood by applying the *ſcarificator*: but this operation will not inſure the removal of the *ſaliva*.

Nor will the ſucking of the wound *, to extract the *ſaliva* of a mad animal, be either ſafe, or to be depended upon: for although the venomous *ſaliva* of vipers has been ſucked,

‖ Celsus, lib. v. cap. 27.
† Palmarius, p. 336.
* Ibid. p. 338.

and

and received into the ſtomach without any bad effect; yet it remains doubtful, whether that *ſaliva* lodged in a carious tooth, or admitted into any the ſmalleſt wound, in the mouth, would not be attended with fatal ſymptoms; much more imprudent would it be, to apply the mouth to the bite of a mad dog, whoſe *ſaliva*, once admitted among the glands, or into the leaſt wound, might produce the dreadful diſeaſe: and in this operation there is not a certainty of extracting the poiſon to authoriſe ſuch a dangerous practice.

REDI, in his Natural experiments on the poiſonous effects of the *ſaliva* of a viper, p. 263. ſays, that the admiſſion of the poiſon depends on the ſort of wound made: if too ſmall, the *virus* will hardly penetrate; if too large, the effuſion of blood will be ſo conſiderable, as to bring away the poiſonous *ſaliva* along with it. Hence appears the uſe of immediate ſcarifications, without cupping, where the part will allow of them.

Secondly, To inlarge the wound, either by dilatation, or by taking the piece out which the dog had bitten, ſeemed a ſurer way of diſlodging the poiſonous *ſaliva*; but, as Doctor MEAD obſerves, the ſeverity of ſuch a practice is needleſs; ſince it cannot always be done in time, nor can it be known whether the *ſaliva* has made any impreſſion, or not.

The ſame may be ſaid of cauteries, whether actual, or potential; ſuch as a red-hot

iron, cauſtics*, corroſive or irritating ointments, bliſters, or drawing plaiſters‖; whoſe application is more painful and terrifying to the patient than promiſing, in it's conſequences of ſucceſs†. Iſſues are recommended, by ÆTIUS, to be kept a long while open.

Some have adviſed the rubbing a pickle of *ſalt* and *vinegar* on the wound; Doctor PARSONS has lately recommended it: and the Rev. Dr. JARED ELLIOTT has ſeen the ſucceſs of it in *New England* and *Connecticut*. A ſurgeon of Doctor PARSONS's acquaintance, alſo, has ſucceſsfully made uſe of the *ſpirit* of *ſalt* with the ſame intention, to reſiſt acrimony and putrefaction. Others have waſhed the wound with a *lixivium* of *oak aſhes* and *urine*.

Emollient cataplaſms of *bread* and *milk*, either by themſelves, or together with opiates, as the *theriaca*, or pure *opium*, have been laid on the wound to aſſuage the pain, decreaſe the irritation, and relax the fibres. Others have made pultices of *ſorrel*, *rue*, roaſted *onions*, bruiſed *garlic*, *leeks*, *yeaſt*, *muſtard ſeed* and *ſalt*, and *oil* of *ſcorpions*, to irritate the wound, and cauſe a diſcharge of the poiſonous *ſaliva*. Some have anointed the part with *oil* and pure *wine* mixed together, or have waſhed it with fat broth. And the *anus*

* LISTER, Exercitatio iii^a, p. 136.
‖ PALMARIUS, p. 337.
† FREIND Opera, p. 146.

of

of an old cock is directed to be put to the wound, to draw out the *virus* *.

† Bleeding, even till the perſon is faint, has been practiſed with great ſucceſs, eſpecially in ſanguine and plethoric conſtitutions, to remove the fulneſs and irritation, and to prevent the ſtricture and tenſion, both as a preventive cure, and in the confirmed ſtate of the illneſs; and yet ſome diſapprove of bleeding, at firſt, leſt the *virus* ſhould be drawn in, from the external parts, to circulate with the blood all over the body.

So generally has almoſt every nation adopted the notion, that the immerſion, or plunging the perſon bitten into the ſea, is an infallible cure, that whoever has been found to controvert it, has ſeldom been hearkened to: but, among other inſtances which might be produced of the inefficacy of this cuſtom, and that the only advantage accruing from it, is to quiet the perſon's mind who has been bitten; Doctor DESAULT relates ‖, that his uncle DAUBAIGNAN, and DUFOURC his fellow ſtudent, both died mad, although they were both dipped in the ſea, and went to the ſea-

* PALMARIUS, p. 337.
Philoſophical Tranſactions, N° 191. p. 140.

† SPEED Commentarius de Aqua marina, p. 25.
Doctors HARTLEY and SANDYS account of a perſon cured of the *rabies canina* by loſing 120 ounces of blood, Philoſophical Tranſactions, N° 448.

‖ DESAULT Diſſertation ſur la rage, p. 287, 288.

ſhore

ſhore the very next day after they had received the bite: and adds, that he could eaſily ſwell the bulk of his Diſſertation, were he to mention the great number of unfortunate perſons to whom bathing, or, as he deſcribes it, forcibly plunging *, into the ſea, was of no ſort of uſe.

Immerſions are recommended and firſt mentioned by CELSUS †, who ſays, "It is "the only remedy;" and adviſes to "throw "the perſon unawares into water, and, if he "cannot ſwim, to be kept under water, that "he may ſwallow it, and then, at times, be "lifted out of it; if he can ſwim, to hold "him under by force, that he may drink, "whether he will, or not: by theſe means "the thirſt and dread of water will be re-"moved at the ſame time."

As CELSUS makes uſe of the word *piſcinam*, a fiſh-pond, or pool of water; it is plain, he means freſh, not ſalt water. VAN HELMONT ‖, in the beginning of the laſt century, obſerving the good effects of plunging in the ſea in *Flanders*, ſtrongly recom-

* Ibid. p. 288.

† Unicum remedium eſt, nec opinantem, in piſcinam non ante ei proviſam projicere, & ſi natandi ſcientiam non habet modò merſum bibere pati, modo attollere; ſi habet, interdum deprimere, ut invitus quoque aqua ſatietur. Sic enim ſimul, & ſitis, & aquæ metus tollitur. CELSUS, lib. v. cap. 27.

‖ VAN HELMONT, Ortus Medicinæ.

mends

mends the practice; and Monſieur MORIN relates ‡, that a young girl, of 20 years of age, had all the ſymptoms of madneſs, which appeared ſixteen days after her being bitten in the hand, by a little boy who was mad, and was brought to bear the ſight of water, without emotion, by being plunged into a bath made of river water, rather cold than hot, in which a buſhel of ſalt had been diſſolved. Nothing extraordinary followed; a fever came on, which was treated in the common method: ſhe took emetics, continued the uſe of bathing, and was cured.

One would imagine that CELSUS had two intentions in his method of immerſion: firſt, by throwing the patient into water unprepared, and unexpectedly to cauſe ſuch a ſurprize as would give a ſtrong ſhock to the human frame; ſecondly, by half drowning him, to make him ſwallow a quantity of water before the *hydrophobia* comes on.

From the nauſeous taſte of ſea water, the awful appearance of the ſea, and the approach of it's roaring billows, ſtrong effects may ariſe, in a perſon who never ſaw the ſea before; and more eſpecially, if in the moſt terrifying and forcible manner they are plunged, and half drowned. The ſea water is never ſo cold as freſh water is, and therefore cannot act on the fibres with the ſame conſtriction

‡ Hiſtoire de l'Academie Royale des Sciences, année 1699.

which

which attends the immerſion in cold ſpring or river water. By its acrid taſte it will occaſion vomiting and purging, and the ſhock which the nerves have ſuſtained by the plunging, together with the ſtrong impreſſion left on the mind, will cauſe a conſiderable revolution in the humors of the human body, and help to diſlodge the remaining active ſalts, after the firſt paſſages have been cleared of the vitiated *ſaliva* and bile which load and irritate the ſtomach *.

But, notwithſtanding theſe advantages attending the dipping in the ſea, accidents may happen which will deter the moſt ſanguine from following Celsus's advice of bathing either in the ſea, or otherwiſe, if the perſon is to be plunged unexpectedly, or forcibly.

The following inſtance, communicated to me by a perſon of credit, will ſhew how cautiouſly ſuch attempts are to be made; ſince, like the old and abſurd cuſtom of affrighting perſons by throwing them unawares into water, or by ſome other ſurprize, in the caſe of intermitting fevers, the patient has been freed, indeed, from one diſorder; but, at the ſame time, ſubjected to another, no leſs terrible and calamitous.

This gentleman was, during his ſtudies at *Oxford*, intimately acquainted with another

* At cum *ſaliva* venenata præcipuè noxia ſit, illa imprimis evacuanda temperandaque ne ſtomachum ampliùs offendat. Lister, Exercitatio iii^a^ p. 136.

ſtudent,

ſtudent, of the ſame college, who was of an amiable, and chearful, but of a modeſt and rather timid diſpoſition of mind. He was one day bitten by his favorite cat, which was ſuppoſed to have been bitten by a mad dog, and inſtantly, without allowing time for examining the creature, was declared mad, and killed. The young gentleman was then hurried away to the ſea, and, as uſual, forcibly plunged into it ſeveral times, out of which he was taken half drowned, and with this ſucceſs, that no ſymptom of madneſs, or of an *hydrophobia*, appeared; but he became mopiſh, and ſtupid, and continued ſo till his death, which happened three years after the immerſion.

Doctor LISTER has recorded *, from the authority of ARDOYN and of Doctor THOROUGHTON of *Nottingham*, that ſome perſons have been ſuffocated by plunging them into water againſt their will: and I am favored with the following caſe by a phyſician of great rank and eminence, who not only remembers the fact, but ſaw Doctor ASHENHURST's written account of it.

A man, who was bitten by a mad dog, became mad, and had the *hydrophobia* on the approach of the full moon, and was ordered by the late Doctor ASHENHURST, of *Cambridge*, to be plunged into the cold bath near

* LISTER loc. cit.

SIR

Sir John Hinde Cotton's ſeat at *Maddingley* in that neighbourhood. The firſt immerſion freed the patient of both the *hydrophobia* and madneſs. A month after, on the return of theſe ſymptoms, he was again plunged, and once more relieved: but, upon relapſing a third time, at the next full moon, and his being again put into the cold bath, he was ſeized with a total diſtenſion of the nerves, and immediately died convulſed in the water.

Doctor Speed *, who has wrote a very judicious and elegant commentary on ſea water, tells us, that it has been a cuſtom long ſince, to bathe in the ſea for the bite of a mad dog: and that, provided the perſons bitten bathe before the madneſs comes on, it often anſwers; but after it's appearance, bathing in the ſea is never to be relied on. The Doctor adds, that he has by him the caſe of a girl, who, in the year 1707, having the *hydrophobia* ſtrongly upon her from the bite of a mad cat, was perfectly cured by frequent ſcarifications of the wound, repeated bleedings, bliſters, purgatives, and ſudorifics: but as neither in this caſe, nor in any other, in the courſe of that great experience which Doctor Speed, and his father, muſt have had of the utility of ſea bathing, any mention is made of it's efficacy; it ſeems probable, that the boaſted cures performed in this illneſs by ſea water, have been wrought on ſuch perſons who have repaired

* Speed Commentarius de Aqua marina, p. 24.

to

to the ſea ſhore, ſuppoſing themſelves in great danger, when the dog, who bit them, may have never been mad. Undoubtedly cures ſo remarkable, and of ſo much conſequence to ſociety, would not have eſcaped Doctor SPEED's notice.

To Doctor DESAULT's teſtimony of the inefficacy of ſea bathing, for the preventing the *hydrophobia*, at or near *Bourdeaux*, may be added, the obſervation of Monſieur CLAUDE DU CHOISEL *, a *Jeſuit*, and apothecary to the miſſion of *French Jeſuits* at *Pondicherry*. His words are;

" Bathing in the ſea has hitherto been " looked upon as an infallible preſervative " againſt the bite of a mad dog. The ex- " perience which I have had of it in all thoſe " patients who were not treated according to " my new method, has proved to me the fal- " ſity of that opinion. They bathed them- " ſelves every day in the ſea, but to no pur- " poſe, not one of them ſurvived the bite " longer than thirty or three and thirty days. " I do not, however, diſapprove of thoſe " bathings, where they ſerve to quiet the " minds of the patients. Beſides, the *In-* " *dians* uſually bathe themſelves every day. " We are ſituated here on the ſea ſhore, and " it is a matter of indifference whether a few " waves of ſea water paſs over their bodies, or

* DU CHOISEL's Method of treating perſons bit by mad animals, p. 18.

" they

" they waſh themſelves in a pond. In this " hot country there is no danger of obſtructed " perſpiration, or pleuriſies. If I were at a " greater diſtance from the ſea coaſt, and in " a cold country, I would have nothing to do " with ſuch ſort of remedies, which I look " upon as entirely uſeleſs, in the cure of this " diſeaſe."

Bathing in the ſea has not, then, ſuch advantages, as may not be procured by other means. For if the chief be the emptying the ſtomach of the acrid bile, by the ſwallowing of the ſea water, this operation can be much more eaſily performed: and as to the immerſion, the water is not cold enough; nor will any one recommend the forcible plunging, for the reaſons above mentioned; and perſons will be to the full as much ſatisfied in their minds, when they are convinced that an eaſier method of cure is practiſed than that of hurrying them into the ſea, where there is not the ſame probability of ſucceſs.

CELSUS * not only recommends bathing in a pond as preventive cure, but even in the violence of the *hydrophobia:* adding, however; " that care is to be taken leſt a tender " conſtitution, being affected by cold water, " ſhould be ſeized with a diſtenſion of the

* Sed aliud periculum excipit, ne infirmum corpus in aqua frigida vexatum, nervorum diſtentio abſumat. Id ne incidat a piſcina protinùs in oleam calidam demittendus eſt. CELSUS, lib. v. cap. 27.

" nerves.

" nerves. To prevent which, ſays he, let " the perſon be inſtantly conveyed from the " pond into a bath of warm oil."

Profeſſor BOERHAAVE, from CELSUS, directs cold bathing in the ſame manner as practiſed by the ancients, or to throw cold water on the perſon till the dread of water ceaſes. This method is thought to be rather expoſing the patient to a greater tenſion and ſtricture of the parts. Doctor MEAD recommends cold ſpring or river water only as a preventive, and after bleeding to promote perſpiration, and a flux of urine. Profeſſor HOFFMAN prefers the uſe of temperate baths, in all ſtrictures of the nervous parts, and moderate draughts of wine, to promote the circulation of the blood. The difference in opinion, between Doctor MEAD and profeſſor HOFFMAN, with regard to cold or temperate bathing, may be reconciled by obſerving, that they are each directed in a different ſtage of the illneſs, and therefore are adviſed to be uſed accordingly. The conſtitution of the patient, time of the year, but eſpecially the ſort of infection, whether putrid, or not, ought certainly to be attended to; and unleſs bathing be cautiouſly ordered, it will oftner prove prejudicial, than ſalutary.

Internal medicines, of various kinds, were preſcribed according to the practitioner's intention, either to prevent the ill effects of the

poiſonous *ſaliva*, or with a view to expel it out of the body.

Thus, firſt, to cool and quench the thirſt, the herbs *purſlane*, *wood ſorrel*, and *ſorrel*, were recommended; alſo, *burnet*, *burnet ſaxifrage*, *rue*, and *chervil*, as diuretics; *marigolds*, *borage*, and *mint*, to warm and ſtimulate; and *lettuce*, to procure ſleep *. The plant and ſtalk of *black currants* † is ſtill looked upon in *Sweden* as no contemptible remedy in the *hydrophobia*. It is well known, that in ſuch countries which are liable to putrid and bilious fevers, the infuſion of *black currants* leaves is in great eſteem; and a jelly of thoſe currants, made with ſugar, is highly commended in contagious diſeaſes, and ſome ſore throats. That all vegetable acids correct the too violent acrimony of the bilious ſalts, is the opinion of BOERHAAVE, HOFFMAN, MEAD, HUXHAM, and almoſt all modern phyſicians; but this is only a palliative cure. I therefore proceed,

Secondly, To conſider the intentions for which more powerful remedies are adminiſtred.

* PALMARIUS, p. 343.

† See Mr. JOHN GEORGE BEYERSTEIN's obſtacles to the improvement of phyſic, in Miſcellaneous tracts tranſlated from the Amænitates Academiæ Upſalenſis, by Mr. STILLINGFLEET, p. 173.

I. * Some

I. * Some were deſigned to ſheathe the humor, and carry it down; as the *oil* of *roſes*, drank to five ounces †: as purgatives, the expreſſed *oil* of *walnuts*, the nuts themſelves, and *hiera picra*. But the moſt efficacious medicine, both as a purgative, and an emetic, and which has not only been greatly extolled by the ancients, but is ſtill made uſe of, with ſucceſs, to this day, and particularly for dogs, and other quadrupeds, is the *white hellebore* ‖: one dram of this root, powdered, and drank in a draught of milk, or forced down, made up into a *bolus* with a little butter, has operated ſo ſtrongly, both as an emetic, and purge, as to carry off all the ſymptoms which had appeared. The ſooner it is given after the bite is received, the leſs irritation is to be feared from it's operation; but, leſt the patient

* *Oils* have been both recommended and forbidden even ſo long as in GALEN's time. BAGLIVI condemns the too general uſe of *oil* in *Italy*; and BIANCHI ſays, that he has known bilious fevers increaſe after the *oil* of *ſweet almonds* had been given. BARON VAN SWIETEN, in his Commentaries on BOERHAAVE's Aphoriſms, declares, That the mildeſt and ſofteſt *oil*, when ſpoiled, is of the moſt putrid nature. The ſweeter *oil* of *almonds*, that is expreſſed, grows ſo rank and corrupted in a few days, as to become very ſharp, and ſcalds the throat while it is ſwallowing down. Aphoriſm 89. p. 130.

† LISTER loc. cit. & in hiſtoria JACOBI CORTON.

‖ Illud quidem verum eſt, hoc medicamentum pituitam vehementer movere, evacuareque, quæ cum ſalivæ venenatæ proxima materia ſit, ſic fortè adjuvare poſſit. LISTER.

DIOSCORIDES, lib. iv. cap. cl. & in Theriaca, cap. ii.

ſhould be too much weakened, the perſons who adviſe this root, caution their patients againſt bleeding.

I was informed by the late Mr. HENRY BLAINE, of *Hartford* near *Huntingdon*, who had experienced the effects of the *white hellebore*, in many dogs, that he had ſucceſsfully adminiſtred it in all ſtages of the diſeaſe, nay, when the fury and *hydrophobia* was ſo ſtrong on the dog, that no one dare approach him: and the method he uſed was, to faſten the dog's head down between the prongs of a pitch fork, and then thruſt down the ball made of the powdered *hellebore* and butter. *Hellebore* is alſo given, by way of ſternutatory, or ehrine, in clyſters, and applied in the form of a ſuppoſitory.

PALMARIUS reports *, that dogs having taken *hellebore* with *polenta*, were vomited, and immediately relieved from their madneſs. This method, taken from DIOSCORIDES †, ariſes from a practice very common among the ancients, both *Greeks* and *Romans*, to drink large quantities of the *polenta*, to ſtrengthen their ſtomachs, and cure them of a *diarrhœa*. The *polenta* is a decoction of oat bread toaſted, in ſpring water, till it be of a brown color like coffee. PLINY ſays, that in his time it dif-

* Addunt nonnulli, canes rabioſos elleboro cum polenta accepto vomuiſſe, & ſtatim a rabie liberatos ad ſe rediiſſe. PALMARIUS, p. 339.

† DIOSCORIDES loco citato.

fered

fered from barley meal in that it was much toaſted, or parched, and ſometimes the *Romans* mixed a little *linſeed* with it, ſome *ſalt*, and *coriander* ſeed. It is mentioned by HIPPOCRATES *, ARETÆUS, and PAULUS ÆGINETA; and eſpecially recommended for the cure of the *cholera* †. Doctor CHARLES AYTON DOUGLAS has revived the uſe of this decoction in *Scotland*, and given an account of it's efficacy, both on himſelf, and others. Doctor DOUGLAS orders it to be made out of bread baked without any leaven or yeaſt, carefully toaſted as brown as coffee, but not burnt: as occaſion requires, he ſometimes adds wine to the decoction. Somewhat ſimilar to this practice is the uſe of *barley water*, *toaſt and water*, and *water gruel*, drank chiefly in ardent and bilious fevers; and from the preference which Doctor TISSOT ‖ obſerved his patients gave to *oatmeal*, agreeable to profeſſor BOERHAAVE's opinion, it may be fairly concluded, that in the diſeaſe produced by the bite of a mad dog, the *polenta* will prove as efficacious as in the *cholera*.

Some have given an infuſion of the leaves of *rue*, of the inner bark of *elder*, of the inner green bark of *box*, to vomit and purge

* HIPPOCRATES De affectionibus.
ARETÆUS, lib. ii. cap. v. p. 102, 104.
PAULUS ÆGINETA, lib. i. cap. lxxviii.
† Medical Eſſays, vol. v. part ii. N° lxv.
‖ TISSOT Diſſertatio de febribus bilioris, p. 75.

dogs; or thoſe ingredients dried, and powdered, and made into cakes with flower and milk.

Profeſſor BOERHAAVE adviſes clyſters of *ſalt water*, with *nitre*, and a little *vinegar*, both to purge, and cool.

II. The ancients, in order to expel poiſons through the pores of the ſkin, had their *alexipharmaca* and *theriaca*; the firſt to remove the poiſons of the mineral or vegetable kind, and the latter the poiſonous *virus* of animals. For thoſe purpoſes, they ordered all the warm ſpicy medicines they could collect: not only thoſe renowned jumbles known by the name of *mithridatium* and *theriaca*, but alſo the pancake compoſed of oyſter-ſhells, *&c.* which Doctor DESAULT records; the famous *Sicilian* antidote made by APULEIUS CELSUS, and yearly ſent over to *Sicily*, as SCRIBONIUS LARGUS relates, were directed; but additions of the aſhes of *freſh water crabs* *, calcined oyſter-ſhells, and of the filings or powder of *tin*, have been made, by way of precipitating or diſperſing the venomous particles. The firſt was recommended by GALEN, ORIBASIUS, ÆTIUS RUFUS, and POSIDONIUS; and the *crabs* were directed to be calcined with the tendereſt twigs of the *white vine*; theſe aſhes were to be well ſifted, and mixed with the powder of *gentian* root, to which was

* DIOSCORIDES loco citato.

ſometimes

ſometimes added *frankincenſe*, as DIOSCORIDES adviſes*: but giving *tin* is of a later date, and was much extolled by Sir THEODORE MAYERN, and Doctor GREW, and is commonly known by the name of *the pewter medicine*. There is very little difference between this remedy, as deſcribed in the Philoſophical Tranſactions: Doctor BATES's *decoctum ad morſum canis rabidi*, and the *decoctum antilyſſum* of Doctor FULLER; being compoſed of filings of *tin*, of *garlic*, and *rue*, boiled in wine, or ſtrong *ale*, to which is added *London* or *Venice treacle* and *mithridate*.

From the chief ingredients of theſe compoſitions one may eaſily conclude, that their efficacy was expected from their pungency and warmth. As preſervatives againſt contagion, *garlic* and *rue* were anciently taken; all kinds of *treacles* and *mithridates* have been thought to expel venom; and *tin* has been looked upon as a certain *vermifuge*; but yet no reliance is to be made upon theſe preparations, to remove the effects ariſing from the bite of a mad dog.

III. The next intention ſeems to have been to diſcharge the poiſonous *virus* through the urinary paſſages by means of diuretics. With this view was the *ſpongia cynorrhodi*, or ſponge of the *dog-roſe*, directed; which, from its efficacy in *Sicily*, was called *all-heal*. The plant

* Ibid.

alyſſum, or *madwort*, *garlic*, *agrimony*, and *oxylapathum*, *ſharp-pointed dock*, were alſo highly recommended. The effect of the *ſpongia cynorrhodi* is attributed to the great number of inſects in that excreſcence; whence, from its animal ſalts, it is deemed a diuretic: and, for this reaſon, Doctor MEAD ſays*, that the learned BACCIUS, upon the authority of RHAZES and JOANNES DAMASCENUS, recommends *cantharides* infuſed in butter-milk, and made up into troches with flowers of *lentils* and wine; and Doctor KRAMER † boils ten grains of the fine powder of *cantharides* in an ounce and half or two ounces of the beſt *vinegar*, which is given warm to the patient in the *hydrophobia*. Whether this preparation deſtroys the troubleſome, nay dangerous effects of the *cantharides*, I will not take upon me to determine; but as theſe inſects abound with acrid diuretic ſalts, it is probable, they will produce, at leaſt increaſe, the *priapiſms*, the known conſequences of *cantharides*, whether applied in bliſters, or given internally in any form. The ſmalleſt bliſter will produce a ſtrangury, in hot and bilious conſtitutions, notwithſtanding it ſhould be armed with muſlin, or well rubbed with *camphor*; and even half a grain of *cantharides*, powdered, has brought on a ſtrong *ſatyriaſis*, or *furor uterinus*,

* MEAD's Eſſays on poiſons, p. 161.

† Commerc. *Norimberg.*

when

when given to youthful and vigorous perſons of a warm conſtitution.

The *pulvis antilyſſus*, firſt recommended by Mr. GEORGE DAMPIER, and communicated by Mr. SOUTHWELL to SIR HANS SLOANE, was publiſhed in the Philoſophical Tranſactions *; wherein SIR HANS SLOANE deſcribes the plant to be not the *Jews-ear*, but the *lichen* †: and in 1721 Doctor MEAD deſired this powder ſhould be inſerted in the *Pharmacopœia Londinenſis*.

Whatever ſucceſs may have attended the *pulvis antilyſſus*, it is certainly a powerful diuretic, and profeſſedly ordered by Doctor MEAD with that intention, as a preſervative againſt the progreſs of the poiſonous *ſaliva* of a mad dog. Doctor MEAD was too well acquainted with the uncertainty of this climate, not to be convinced, that, of all the ſecretions by which the ſaline particles of the poiſonous *ſaliva* could be diſcharged, there was none ſo likely to be obſtructed as perſpiration: and knowing, that, next to the diſcharge through the pores of the ſkin, the kidneys carry off the greateſt quantity of lymph, and ſupply the want of perſpiration; it was very conſiſtent, in that great phyſician, to direct a remedy which he knew acted as a powerful diuretic. But it has been queſtioned, by ſome

* Philoſophical Tranſactions, N° 237.

† See a deſcription of this plant taken from Mr. RAY, in Doctor MEAD's Eſſays on poiſons, p. 166.

expe-

experienced phyſicians, profeſſor BOERHAAVE, Baron VAN SWIETEN, and our accurate and ingenious botaniſt Doctor WATSON *, whether the *lichen cinereus terreſtris*, or *aſh-colored ground liverwort*, is endued with that quality which Doctor MEAD attributes to it. From the Doctor's examination of this moſſy plant ſo claſſed by profeſſor DILLENIUS, the ſeveral portions of acid water, oil, and coal, containing fixt ſalt which were produced, by diſtillation, will determine the queſtion, Whether it be a diuretic, or not? and ſuppoſe this plant not to have all the deſired efficacy, the other ingredient in the preſcription will eaſily be ſhewn to be ſufficient, of itſelf, to have anſwered the intended purpoſe. In the original receipt, in Mr. DAMPIER's family, the proportions of the *liverwort* and *black pepper* were equal; but Doctor MEAD reduced the quantity of pepper to only one third of the whole, leſt the pepper ſhould be too hot. Whoever will inquire into the opinion of the ancients, may take the following extract from that great naturaliſt Lord BACON †. "Pepper, ſays he, "by ſome of the ancients is noted to move "urine, when given in great quantity; which, "being given in ſmall quantity, moveth wind "in the ſtomach and guts, and ſo expelleth "by ſtool. But being in greater quantity, "diſſipateth the wind, and itſelf getteth to

* Philoſophical Tranſactions, vol. l. part ii. p. 681.

† BACON's Sylva Sylvarum, cent. i. v. 44.

"the

" the meſentery veins, and ſo to the liver and " reins; where, by heating and opening, it " ſendeth down urine more plentifully."

Thus it appears, that pepper was, many years ago, acknowleged to be a diuretic; and therefore the *pulvis antilyſſus* may have anſwered Doctor MEAD's intentions, in many caſes, although it was never looked upon, by that excellent phyſician, as an infallible remedy, any more than any other medicine. He well knew, it would not ſucceed in ſuch caſes where it might heat too much: he purpoſely, therefore, leſſened the quantity, to prevent heating, and gave it in warm milk, that it might ſheathe and leſſen the acrimony of the *ſaliva*, carry the powder more eaſily through the firſt paſſages, and ſo into the blood. DIOSCORIDES * and PALMARIUS recommend the uſe of milk in all caſes of poiſons: and as in the diſeaſe ariſing from the bite of a mad dog, the bile is viſibly affected, the aceſcent quality of the milk renders it the more uſeful to correct the acrimony of the bilious ſalts. Doctor MEAD never imagined the *pulvis antilyſſus* could be of uſe when the *hydrophobia* was once come on: it is therefore plain, that, after bleeding, he directed this powder as a preventive cure, to diſcharge the acrid ſalts by urine, which cold bathing would alſo aſſiſt.

* DIOSCORIDES De victus ratione demorſorum a cane rubioſo in theriaca, cap. ii. PALMARIUS loc. cit.

IV. The

IV. The poiſonous effects of the *ſaliva* of a mad dog have very ſtrenuouſly been aſſerted, by Doctor DESAULT *, to ariſe from worms contained in the *ſaliva* of the dog, and propagated in whatever creature it be inoculated; but the dormant ſtate in which this *virus* hath lain many years, before it hath broken out, is a ſufficient argument to overthrow that *hypotheſis*, however ſupported by the authority of BONETUS, ETMULLER, AVICENNA, and others. With a view of deſtroying thoſe inſects, he adopts and recommends the boaſted powder preſcribed by PALMARIUS, conſiſting of bitter and *vermifuge* herbs; to which Doctor DESAULT adds the *coralline*. PALMARIUS's † powder conſiſts of, the leaves of *rue*, *vervain*, the *leſſer ſage*, *plantain*, *polypody*, *common wormwood*, *mint*, *mugwort*, *baſtard baum*, (*meliſſophylon*,) *betony*, *St. John's wort*, and the *leſſer centaury*, of each equal weight. Theſe are to be dried, and powdered, and half a drachm of the powder is to be taken upon an empty ſtomach, and three hours before meals either with twice the quantity of ſugar, or in wine, cyder, broth; or with honey, or butter, in the conſiſtence of an electary.

However ineffectual this preſcription muſt appear, to every one who conſiders the caſe

* DESAULT Diſſertation ſur la rage, article ii.
† PALMARIUS, p. 344.

for

for which it was intended *, yet the ſame intention has produced one of the moſt ſalutary effects that mankind could receive, by ſuggeſting to Doctor DESAULT a far more eaſy, and more certain preventive cure. He ſays, that from ſeeing worms of various kinds, and almoſt all ſorts of verminous inſects, and cutaneous eruptions, deſtroyed by *mercury*, he was induced to try what a mercurial unction would do.

This method of preventing the ill conſequences of the bite of a mad dog, by a mercurial friction, was attended with all the favorable ſucceſs, Monſieur DESAULT, the firſt inventor of it, could deſire; and has ſince, by repeated cures, both in *Europe* and *Aſia*, confirmed the utility of this practice.

His method is, to rub upon the wound, and all over the adjacent parts, one or two drams of an ointment made of, *one third part of mercury revived from cinnabar, one third part of human fat, and as much of hog's lard.*

The frictions are repeated every other day, in the beginning; after the third time, every third day; after the ſixth, every fourth, till two or three ounces of the ointment be uſed; always proportioning the quantity to the ſtrength, age, conſtitution, ſex of the patient, and the ſtate of the bite.

* See the note at p. 16. of this Eſſay.

But

But ſhould the patient have applied, many days after the bite; he then orders the frictions to be daily repeated every day, for four or five days.

Doctor DESAULT very ſenſibly adds *, that ſhould the *mercury* occaſion a ſlight ſalivation, it could not but be attended with good ſucceſs: for, ſays he, the poiſon of the *rabies*, ſticking to the *ſaliva*, and *mercury* naturally taking its courſe towards the mouth, can it be doubted that this ſovereign antidote, in many diſorders, ſhould not alſo deſtroy that which occaſions the *hydrophobia*?

Common experience teſtifies, that, in the cure of venereal complaints, where *mercury* is applied, and a ſalivation is to be prevented, emollient clyſters, or the mildeſt laxative and diuretic purges, turn the courſe of the humors, and prevent the uſual effect of the *mercury* upon the ſalival glands; ſo that, in this preſent caſe, where the tainted *ſaliva* is to be diſcharged, a ſalivation may be either encouraged, or checked, as the practitioner thinks moſt expedient.

Doctor DESAULT makes no alteration in the perſon's food, or meals, provided he avoids all exceſs. He allows the moderate uſe of wine, to raiſe the patient's courage; and ſtrongly recommends, that, far from leaving the perſon alone, he ſhould be conſtantly in chearful company; who, however, muſt be careful ne-

* DESAULT Diſſertation ſur la rage, p. 305.

ver

ver to let their diſcourſe turn on ſuch ſubjects as have any relation to the patient's caſe.

The late Mr. JOHN DOUGLAS, a ſurgeon of great abilities, publiſhed in 1738, on a ſingle half ſheet of paper *, his recommendation of the mercurial friction, for this very diſeaſe. He directs one dram of a mercurial ointment, conſiſting of

One pound of pure quickſilver, and the ſame quantity of human fat, and of hog's lard, and two ounces of clarified turpentine, mixed according to art,

to be rubbed into the wounds, and parts adjacent; and Doctor MEAD's *pulvis antilyſſus* to be taken every morning in a glaſs of wine and water, water, or cow's milk warm. The unction is to be repeated every evening, and the powder every morning faſting, during three weeks, leaving off the unction two or three days when the mouth begins to be ſore, to prevent a ſalivation. Then the *mercury* is to be purged off, and in about three weeks or a month after, when the patient has recruited, he is to uſe the cold bath.

It is plain, from theſe directions, that Mr. DOUGLAS's intentions were to diſcharge

* A ſure method of preventing, and the moſt probable way of curing, the *hydrophobia*, i. e. the dread of water, after the bite of a mad dog; a diſeaſe hitherto found incurable by the practitioners of all nations. By JOHN DOUGLAS, Surgeon, and F. R. S. *February* 26, 1738. Given *gratis* in *Lad-lane* near *Guildhall*.

the poiſonous *ſaliva*, by the ſalival glands, by perſpiration, and by the urinary paſſages. Where the *hydrophobia* is come on, he adviſes plentiful bleeding, and the rubbing in a large quantity of the ointment into the *axillary* and *inguinal* glands, and all over the limbs.

To theſe intentions of diſcharging the poiſonous *ſaliva* of the mad dog, through the ſalival glands, the pores of the ſkin, and the urinary paſſages, by *mercurial* applications, Monſieur Du Choisel's method is to be ſubjoined, as more efficacious in the climate he lives in.

In thoſe hotter climates, the mercurial ointment is uſed with equal ſucceſs. Monſieur Du Choisel *, apothecary to the *Jeſuit* miſſion at *Pondicherry*, in the *Eaſt Indies*, makes an ointment of

One ounce of crude mercury, extinguiſhed in two drams of turpentine; of mutton ſuet three ounces.

The heat of the climate determines Mr. Du Choisel to prefer *mutton ſuet* to *hog's lard*. He rubs in one dram upon the wounded part, keeping the wound open as much as poſſible; the next day he repeats the unction on all the bitten member, and purges the patient with a dram of his mercurial pills; the third day

* Du Choisel's method of treating perſons bit by mad animals, p. 17.

he

he rubs the ointment only over the bitten part, he gives a ſmall mercurial bolus, or the fourth part of the mercurial pills above mentioned. Thus he continues for ten days to rub in a dram of the ointment every morning, and to give the laxative bolus, which commonly procures the patient two or three ſtools, and hinders the mercury from affecting the upper parts. At the end of ten days, he purges again, with the ſame pills, and diſmiſſes the patient.

The mercurial pills are compoſed of

Three drams of crude mercury, extinguiſhed in one dram of turpentine; of the beſt rhubarb, colloquintida in powder, and gutta gamba, of each two drams. The whole to be made up, with a ſufficient quantity of clarified honey. The doſe one dram.

This method is only adapted to ſuch perſons who apply to Mr. Du Choisel, immediately after being bitten. After two or three weeks, the diſeaſe having taken a deeper root, Mr. Du Choisel increaſes the doſe of the medicines, and continues them for a longer time. The doſe is alſo proportioned to the age and conſtitution of children, a ſmall quantity of the ointment is rubbed in for fifteen days, and he purges them, once in three days, with ſyrup of *rhubarb*. As to regimen, Mr. Du Choisel forbids his patients the uſe

of things tart or acid, of all crude meats, and ſuch as are hard to digeſt.

Thus it is obvious, from Mr. Du Choiſel's account, that crude *mercury* expels the poiſonous *ſaliva* through the ſalival glands; and that, to prevent an obſtruction in thoſe glands, it is neceſſary, in the *Eaſt Indies*, to purge with the above mentioned pills. But what gives the greateſt ſatisfaction, is the caſe he relates *, of a woman who had the *hydrophobia*, and was cured by rubbing in three drams of the mercurial ointment, at a time, and ſo repeated, night and morning, till a plentiful ſalivation came on; which relieved her head, removed the *hydrophobia*, and cured her entirely; the ſalivation being carried off by a *dyſenteric* purging, which was alſo remedied by means of a laxative electary, with *rhubarb*, taken in the morning, and a doſe of *diaſcordium* at night.

This ſerves to prove the efficacy of *mercury* in this diſeaſe, as well as in the *lues venerea*. And certainly *mercury* in a crude ſtate, purified, and cleanſed, has this peculiar advantage attending it, well known to thoſe who adminiſter it frequently, that it neither irritates, nor is ſo uncertain in it's operation, as moſt mercurial preparations are; for which reaſon it is ſafely applied externally, and may

* P. 25, 26.

be

be given internally, in a ſtate of inflammation, in this diſeaſe, as well as in the venereal one. Experience demonſtrates the ſucceſs of crude *mercury*, in Monſieur DU CHOISEL's curing above 300 patients, from the year 1749 to 1753.

In *Aſia*, and *Europe*, mercurials have been given internally, to prevent the bad effects ariſing from the bite of a mad dog; and I ſhould have mentioned them, according to the time of their being introduced into practice, before Meſſieurs DOUGLAS and DU CHOISEL's methods, had not theſe two practitioners followed the ſame intentions with Doctor DESAULT; and therefore it was proper to place them in that order.

In *Aſia*, where the heat of the climate produces a profuſe perſpiration, and the inhabitants require a ſupply of animal particles, and of ſpirituous liquors, the *Chineſe* make uſe of the following medicine; which, from it's great ſucceſs, was brought over to *England* by SIR GEORGE COBB, and Lady FREDERICK, in hopes it might prove as effectual in *Europe*, as in the *Eaſt Indies*, for the cure of the diſtemper ariſing from the bite of a mad dog.

The preſcription is as follows:

Take of native and factitious cinnabar, of each twenty-four grains; of muſk, ſixteen grains: Let them be powdered, and well mixed together.

As ſoon as poſſible, after the perſon is bitten, he is to take this powder in a glaſs or tea-cup full of *arrack*. If no ſymptom appears, this doſe is thought to ſecure the patient, for thirty days; but if the leaſt ſymptom is upon him, then the doſe is to be repeated three hours after.

From the compoſition of factitious *cinnabar*, and the chymical analyſis of native *cinnabar*, it appears, that they are both compoſed of *mercury*, and *ſulphur*, the firſt in a proportion of above three to one, and the latter of ſix to one of *mercury* to the *ſulphur*. The other ingredient *muſk*, is an animal ſubſtance, which promotes a gentle ſweat, without heating, raiſes the ſpirits, eaſes pain, and uſually brings on a refreſhing ſleep. It is known to be an excellent antiſpaſmodic; and Doctor WALL has recorded in the Philoſophical Tranſactions *, it's good effects in convulſive diſorders, particularly in two perſons attended with *ſubſultus tendinum*, extreme anxiety, and want of ſleep, from the bite of a mad dog. Doctor HUXHAM ſays †, that *muſk* has a great power of expelling the morbid humors through the pores of the ſkin, without heating too much. And Mr. PRINGLE ‖ has given ſixteen grains of *muſk*, with twenty-five grains of *native cinnabar*, and as many of *cinnabar*

* Philoſophical Tranſactions, N° 474.
† HUXHAM De aere & morbis, tom. ii. p. 125.
‖ Phyſical Eſſays, vol. ii. p. 252.

of

of antimony, in a glaſs of brandy, to a lady, in a bad fit of the gout. Doctor HILL, in his *Materia Medica* *, alſo commends *muſk* as a cordial and antihyſteric.

This preſcription, then, is not only of uſe to the *Chineſe*, as a diaphoretic, antiſpaſmodic, and antihyſteric; but may be of great ſervice, alſo, in *Europe*, eſpecially among thoſe who have no diſlike to perfumes, or feed much upon animal food, and delight in ſpices, and high ſeaſonings: but, notwithſtanding I readily acknowlege the good effects of *muſk*, in ſpaſmodic, epileptic, and hyſteric caſes; yet I muſt fairly own, that, in putrid diſeaſes, where the *craſis* of the blood has been broken, and the *vis vitæ* much impaired, *muſk* has failed me, in ſuch conſtitutions as have been accuſtomed to a vegetable diet, and very little animal food: and when neither the *muſk julep*, nor *muſk* in ſubſtance, would take place, the *camphorated julep*, with acids, has ſucceeded. This doth not quite invalidate the uſe of the *muſk* and *cinnabar*, in the caſe of a bite from a mad dog; it may certainly ſucceed, even in our climate, as a preventive, but whenever the diſeaſe attains any degree of putridity, it will not be ſafe, entirely to rely upon it.

Doctor JAMES is the firſt practitioner, in *Europe*, who has adviſed a mercurial medicine to be taken internally, for the prevention and

* HILL's Materia Medica, p. 861.

cure of this terrible diſeaſe. It appears, from his publications, that, towards the end of the year 1731, the Doctor recommended the uſe of *turpeth mineral*, or *mercurius emeticus flavus*, with the ſame intentions as this medicine is given in the venereal diſtemper; and from the ſucceſs of it in which, he moſt probably took the hint.

In a pamphlet, printed in 1741, he writes to profeſſor BOERHAAVE, that the following preſcription had, in *February* 1732, cured two foxhounds, actually mad, and to whom neither dipping in ſalt water, nor the *tin* medicines, had done any good. He gave from ſeven and twelve grains, to twenty-four, of the *turpeth mineral*, to one dog, who had a plentiful ſalivation, and recovered.

As a preſervative, Doctor JAMES preſcribed to perſons bitten, as follows:

Take of turpeth mineral twelve grains, of compound powder of contrayerva one dram, of Venice treacle as much as is requiſite to make three boluſſes; one to be taken every night, with an antihyſteric julep.

This method was attended with ſucceſs in the cure of a young man of eighteen, another of ſeventeen, and a girl of fourteen years of age, who were all bitten by dogs who proved mad; but not one of thoſe perſons had the leaſt ſign of an *hydrophobia*, nor any other aggravating ſymptoms, than dejection, and tremors.

mors. It does not appear that any external application was made to them, although the Doctor in this pamphlet, and in the ſucceeding edition in 1743, directs the uſe of Doctor DESAULT's mercurial ointment, and alſo the *pulvis antilyſſus*, and *cinnabarine* powder.

In autumn 1760, Doctor JAMES publiſhed a looſe half-ſheet, of *Inſtructions for preventing and curing of canine madneſs*; in which, having labored much to prove himſelf the firſt inventor of the mercurial method, at leaſt taken internally, which there ſeems no reaſon to diſpute, although Doctor JAMES owns that Doctor DESAULT was the firſt that made uſe of the mercurial ointment, as Mr. DOUGLAS informed him; the Doctor proceeds to recommend the rubbing in of a dram of a mercurial ointment every day, during a week, and even twice a day, without raiſing a ſalivation. He alſo adviſes the *turpeth mineral*, but in leſs quantities, and with a different intention. The preſcription is altered thus:

Take of turpeth mineral from three to eight grains, according to the ſtrength of the patient, and the degree of infection received; camphire an equal quantity, to be made with conſerve of hips into a bole. To be taken three times, alternately, every other night.

Doctor JAMES's intentions plainly appear, firſt, by his direction of the *turpeth mineral*,

the *compound powder of contrayerva*, and the *Venice treacle*, to have vomited and promoted both the ſalivary and cuticular diſcharges; but finding the irritation of the mercurial vomit too great to allow of the other ingredients to operate, he changes his deſign, and mixes equal quantities of *turpeth mineral* and *camphor*, to promote perſpiration, and hinder the *turpeth*, as he ſays, from vomiting; but the *nauſea* cauſed frequently by the *camphor*, will, probably, diſappoint the intended effect; eſpecially when the ſtomach is in a ſtate of irritation, from the vitiated *ſaliva* admitted into it: ſo that even this mixture, long ſince recommended by medical authors, to ſheathe the acrid particles of mercurial preparations, and to promote their operation, as alterants and diaphoretics, in venereal caſes, cannot be ſo well adapted, in the caſe of perſons really bitten by mad dogs. The *turpeth mineral* can therefore only be given, with ſafety, at ſuch an age, and in ſuch conſtitutions as are of a relaxed texture, leucophlegmatic, or debilitated; in which, as in many venereal inſtances, the ſolids and fluids require a degree of irritation, to enable them to perform their functions and ſecretions: but where there is already a tenſion, which is likely to be increaſed, and produce ſpaſms, a milder method of introducing mercury is to be

pre-

preferred, which, even in the higheſt degree of inflammation, owing to an acrid venereal *virus*, is known to have had all the deſired effect, without cauſing the leaſt pain, heat, or ſenſible inconveniency. And this is the introduction of crude mercury into the blood, by means of a mercurial ointment.

In the conſideration of the following caſes I ſhall endeavor to make it appear what kind of treatment, and medicines, have proved chiefly beneficial.

SECTION

SECTION IV.

OBSERVATIONS.

CASE I.

A NARRATIVE *of an uncommon* CASE, *which happened about* 25 *years ago, in the neighbourhood of* Saliſbury, *from the bite of a mad dog. Communicated by Doctor* HELE, *phyſician at* Saliſbury.

A Young lady, about twenty years of age, and of a good healthy conſtitution, feeding her little favorite dog, at dinner, was bitten by the finger, ſo that it bled a little, on both ſides, where his teeth had broke the ſkin; and ſhe unfortunately ſucked the blood, and ſpit it out. The dog had been ſullen and ſleepy all that day, and refuſed his victuals. The next day the gamekeeper, ſuſpecting madneſs, confined him, and in two days he died.

The young lady, alarmed at this terrible accident, came the next day to me for advice. I ordered her to loſe eight ounces of blood, from the arm, to take Doctor MEAD's *pulvis antilyſſus* for ſix mornings, and, after that, to undergo the uſual immerſions in the ſea, drinking

drinking half a pint of the ſame water, every morning, for a month. She obſerved the former part of theſe directions, and then repaired to *Southampton*, for the benefit of the ſea water. The next day after her arrival, ſhe was dipped; but being kept under water for ſome time, and then dipped again, and again, with very ſhort intervals, ſhe was ſo much frightened, that ſhe could not be prevailed upon to bathe a ſecond time, or ſo much as to drink the water; but ſhe reſided there the whole month (the time allotted for this courſe), and then returned to her friends, concealing from them the inexcuſable omiſſions ſhe had been guilty of: and they had not the leaſt diſtruſt but ſhe had regularly conformed to the whole courſe preſcribed.

She continued quite well, for five months, and about the expiration of that time ſhe was ſeized ſuddenly with a chill, ſoon after ſhe had ſat down to make tea for the company who had dined there that day; and this little *rigor* was immediately ſucceeded by ſo total a *ſyncope*, that ſhe fell from her chair, and remained ſpeechleſs and ſenſeleſs on the floor, for ſome minutes. She was carried up ſtairs, and ſoon put to bed, and ſome time after, ſhe grew warm, and ſhe had reachings to vomit. She took two ounces of *ipecacuanha* wine, with half a dram of *ſpir. lavendul. comp.* which had good effect, by relieving the great load and oppreſſion on the ſtomach, and promoting a per-

perſpiration, which kept her eaſy a good part of the following night: but in the morning I found her low, hot, and reſtleſs, with a quick weak pulſe, and complaining of great weight, and uneaſineſs about the *præcordia*, with a *ſubſultus tendinum*, and frequent twitchings, and ſtartings. Bliſters were immediately applied to the back and arms, and ſinapiſms to the feet, and the diaphoretic medicines exhibited as uſual in ſuch caſes. Every thing went on much the ſame that night; and finding the patient not at all relieved the next morning, but growing rather *comatoſe* and delirious, with the ſame low quick pulſe, I ordered bliſters to be applied to the head and thighs. The next morning I found her relieved of the *coma*, and *delirium*, but the *ſubſultus tendinum*, and convulſive twitchings, much the ſame; and the nurſe told me, that ſhe often, in the night, called for liquor, but could not drink it when brought to her. I never had, till then, the leaſt thought of the bite of the mad dog; but now, being apprehenſive that this ſymptom was ſomewhat of the *hydrophobous* kind, I aſked her whether ſhe would drink a draught of any of the liquors appointed for her common drink. She expreſſed great deſire of drinking, but ſaid, the liquors offered her by the nurſe went againſt her ſtomach. I aſked her what ſhe herſelf would chuſe to drink. She thought, that if ſhe could be indulged with ſome *Rheniſh* wine and water, it would

be

be the moſt agreeable draught ſhe ever had in her life. Both were ſoon brought, and I myſelf mixed them, by the bed-ſide, that ſhe might not ſuſpect that we had, in any ſhape, deceived her. She caught at the glaſs, with great eagerneſs, but the moment it touched her lips, ſhe puſhed it from her, and, as I preſſed it to her mouth, with ſome little force, ſhe as ſtrenuouſly puſhed it away, and, with a ſmall ſtruggle, fell into a ſtrong convulſion, which laſted ſome time, and ſeemed to be attended with the ſame ſort of fulneſs of the throat, and ſtrangulation, as frequently accompany hyſteric diſorders. I then pronounced the whole illneſs to be the effect of the dog's bite, and that this averſion to drinking was the worſt ſymptom that could befal us. I ordered her a bolus with *cinnabar. antimon. pulv. ad guttetam*, ā ā ℈j, to be given every ſix hours, which ſhe ſwallowed tolerably well, but not a drop of liquid could be got into the mouth, even by force, without cauſing a return of the convulſive fits. The next morning, I ordered a bliſter to be applied all round the neck, as broad as her neck (which was naturally pretty long) would admit of, and the bolus to be repeated as before. The next day ſhe would take down a little quantity of warmed liquid at a time, though it often ſeemed to put her into great agonies. After this manner, in ſhort, we kept on, with the addition of five grains of *ſal. volatil. ammoniac.* to each bolus;

the

the exhibition of glyſters occaſionally, and ſuch other few diſcretionary alterations or additions, for ten days longer; when, after a gentle *diaphoreſis*, for almoſt three days and three nights, the fever, and every concomitant bad ſymptom, entirely left her, and ſhe got ſtrength apace, ſlept ſound and quiet ſleeps at night, ſat up for ſeveral hours at a time every day, and converſed very agreeably and ſedately with any of the family who viſited her.

Thus ſhe went on for a fortnight, or longer, and then, one morning, after ſhe had been up about an hour, and was talking, in a pleaſant manner, with a young lady of her intimate acquaintance, ſhe fell into a phrenzy, and, in leſs than an hour, ſeemed quite a maniac.

The pulſe was very quick, and, though not full, yet ſhe was blooded by force, a glyſter given, and a large bliſter applied to the back part of the head, and all this time ſhe attempted to bite every body that came near her, which ſhe was never once inclined to do, in all her former fever. In this raving condition ſhe continued for thirty hours, when ſhe fell aſleep, with the great fatigue, ſoon got into a profuſe ſweat, and became quite ſenſible again.

It is to be obſerved, that this paroxyſm of phrenzy began about twenty-four hours before the new moon; and although it left her in the manner above mentioned, and ſhe continued, apparently, as well as ever ſhe was in her

her life, for the ſpace of three weeks, and upwards; yet, about thirty hours before the next new moon, the fever and phrenzy returned, with the ſame violence as before, but continued not above twelve hours, when it went off with the uſual ſleep, and ſweat: and thus, for the ſpace of five months longer, we had the raving paroxyſms, and clear intermiſſions, more or leſs, about the time of the new moon: but every month the raving fits ſhortned, and the laſt of all held not above half an hour; when ſhe voluntarily threw herſelf on the bed, and ſlept and ſweat as before.

During the whole time, the large bliſter on the *occiput* was kept open, the *cinnabar* bolus given twice in twenty-four hours, and gentle cordial purgatives were adminiſtred, as occaſion required. The *catamenia* were regular, before, at, and after the whole courſe of the diſorder. She purſued the ſame method for ſome months longer, the bliſter ſtill kept open the whole time, as large as all the hinder part of the head would admit, and ſhe had never afterwards the leaſt ſymptom of any relapſe, though ſhe married about a year after, and had ſeveral children, and died about nine years after her recovery.

It is further to be obſerved, in the firſt place, That even the ſmall preventive courſe ſhe followed, may have protracted the appearance of any bad ſymptom for ſome months, and might likewiſe be the principal cauſe of their remark-

able deviation from the common courſe of ſuch fevers, when they did come on.

Secondly, I think it is to be conſidered, how far the bliſter, round the neck, might alter the quality of the *ſaliva*, remove that reſemblance of a *hydrophobia*, and avail in reſtoring a power of deglutition, though with ſome difficulty.

And, Thirdly, I would beg leave to mention the power and efficacy, I have frequently experienced, of *cinnabarine* medicines (without *muſk*), but joined with *pulvis ad guttetam*, in convulſions of almoſt all kinds, either with or without fever; and that, whenever I have added the *valerian* root, inſtead of the *pulvis ad guttetam*, it has generally ſtimulated too much, and increaſed, rather than diminiſhed, the convulſive ſymptoms.

November 14, 1760. H. HELE.

REMARKS.

This caſe is the ſtrongeſt proof of the validity of Doctor MEAD's opinion, in favor of a nervous fluid, and of this fluid being particularly affected by the vitiated *ſaliva* of the mad dog: for it ſeems, without any previous or immediate effect on any of the blood-veſſels, or on any of the tendons, or large nerves, to have been abſorbed by the lymphatic veſſels,

and

and to have circulated through the whole maſs of fluids.

The bleeding, and diuretic *pulvis antilyſſus*, may, as Doctor HELE obſerves, have delayed the fatal effects ſome months; but the ſingle immerſion in ſea water was of no advantage; ſince it only ſerved to terrify the young lady to that degree, that ſhe could not bear the thoughts of repeating the bathing.

No pain in the finger which had been bitten, and healed, without any particular care, in two or three days; no pricking, ſhooting, or darting pain up the arm, came on, to ſhew any particular irritation of the nerves externally. But at the end of five months, when near the full moon, a ſudden chillneſs and *ſyncope* ſeized her, followed by reachings to vomit, oppreſſion of the *præcordia*, attended with anxiety, a quick pulſe, *ſubſultus tendinum*, and frequent catchings. Can it be doubted, that the nervous fluid and the whole maſs of blood were wholly affected, and that this was an effort of nature to expel the poiſon? Nay, more; if it be conſidered, that, three days after, the *hydrophobia*, and *nauſea* at the ſtomach, came on: is not this the critical diſcharge by which the acrimonious ſalts of the *ſaliva* were to be thrown off? and did not the bliſter, applied round the neck, and continued a long while open, ſerve to draw off, as in the *angina*, part of the humor from the ſalival glands, and, of courſe, leſſen the degree of irritation

all along the *æsophagus*, which cauſed the *hydrophobia?*

Ten days after this ſeizure, a *diaphoreſis* broke out, which laſted three days, and three nights; and this ſweating carried off the fever, and other ſymptoms. The *cinnabar* and *pulvis ad guttetam*, with the addition of *ſal. ammoniacum*, produced this effect in the blood, and no extraordinary motion was found in it; during a fortnight after, her mind recovering alſo its ſerenity and chearfulneſs.—But, about twenty-four hours before the next full moon, ſuddenly a phrenzy comes on, and the young lady becomes a perfect *maniac*, in leſs than an hour. She is furious, endeavors to bite, and, by means of a profuſe ſweat, ſhe recovers her ſenſes. The ſymptoms return about thirty hours before the next full moon, laſt not ſo long a while, but every month, repeatedly five times, Doctor HELE ſaw them, and conquered them, at laſt, by a perſeverance in the uſe of the *cinnabar* powder, and keeping a bliſter perpetually open on the back of the head.

Can there be ſtronger proofs of a nervous fluid particularly affected in this ſtage of the diſeaſe? Does not the power of the moon ſhew itſelf in thoſe periodical returns? Does the leaſt ſign of inflammation now appear by the blood, and is it not owing to the ſeaſonable evacuations, and, indeed, to Doctor HELE's whole prudent directions? Does not this young

young lady's caſe ſet Doctor MEAD's opinion beyond all diſpute?

I cannot paſs over one very neceſſary obſervation; that, in the whole courſe of this diſorder, the *menſes* appeared regularly: therefore the blood had, all along, a due fluidity, agreeable to what profeſſor BOERHAAVE, and other authors, have obſerved *.

CASE II.

THE CASE of ELIZABETH BRYANT, publiſhed by Doctor NUGENT, deſerves notice: and I have extracted it from the Doctor's Eſſay, in order to make ſome remarks upon it.

ELIZABETH BRYANT, twenty-two years of age, healthy, and of a good habit of body, chiefly ſanguine, and phlegmatic, was, on the 23d of *June*, 1757, bit, by a mad turnſpit dog, on the third finger of her right hand, which bled ſome few drops; and on the back of the hand, the ſkin of which was pinched through, but did not bleed. The ſores healed ſoon, without any particular application; the dog died the next day. Upon her being reſtleſs and fretful, Mr. WRIGHT, a ſurgeon of reputation, ordered her to the ſea, where ſhe was dipped, till ſhe could bear it no longer.

* Cruorem valde ſiquidum, & vix in aëre concreſcentem. BOERHAAVII Aphoriſm. 1740.

On her return he bled her in the arm, and gave her four doſes of Doctor MEAD's *pulvis antilyſſus*. On the 20th of *July* ſhe was put into the cold bath, which treatment was repeated four mornings ſucceſſively; then, upon complaining of a numbneſs and pain in the arm and ſhoulder of the hand that was bitten, SIR GEORGE COBB's medicine, of *cinnabar* and *muſk*, was given. She thought her ſpirits greatly relieved, and ſaid ſhe was very well. The appearance of the *catamenia* prevented her uſing the cold bath next day. On the 27th of *July*, in the morning, about five hours before the full moon, ſhe was, *all at once*, ſeized with a pain in the middle finger, and at the back of the hand, where ſhe had been bitten, darting up her arm and ſhoulder, acroſs her throat, and then ſhe was afraid of being choaked; and uſed to lay hold of her throat as if to prevent it's cloſing up; could not bear the ſight of water, nor hear even the noiſe of falling water, which, as alſo the barking and howling of dogs, brought on the pain to an intolerable degree, attended with a *ſuffocation, ſhort breathing, dizzineſs, riſings at her ſtomach, breaſt, and throat*, and ſtrong catchings, as if ſhe was going into convulſions. In this ſtate Doctor NUGENT viſited her; and, by preſenting a baſon of water, was confirmed that ELIZABETH BRYANT was ſeized with an *hydrophobia*. She had immediately fifteen ounces of blood drawn, and a

Mass. Medical College

paper

paper of the *cinnabarine* powder was ordered to be taken every three hours, in honey; a pill, of two grains of the *extractum thebaicum*, every three hours, with the powders, till reſt could be procured; and a plaiſter of *galbanum*, with half an ounce of the ſame *extractum thebaicum*, to be applied to the throat and neck. In the evening ſhe was eaſier, and could recollect ſhe had been blooded, and with great difficulty ſwallowed ſome broth. Her blood looked very well. The powders and *opium* pill were repeated every three hours, and the wounded arm rubbed with warm ſallad oil, ſeveral times a day. The 28th of *July* ſhe was bled again, to twenty ounces, and had a clyſter of *antimonial* wine, the pills and powders repeated, and the ſallad oil rubbed as before. She could ſwallow liquids better; was ordered ten grains of *turpeth mineral*, and another clyſter. *Monday* morning, the 29th, ſhe loſt twelve ounces of blood, the powders continued, was directed to drink often of barley water with *nitre* and the *galbanum* plaiſter renewed. In the evening every way better, the pain in her arm and hand quite gone, but her fear of dogs and water remain. The *muſk* and *cinnabar* to be taken as before, the oil to be rubbed in, and only two grains of the *extract* of *opium* to be given at night. *Tueſday*, 30th *July*, ſhe was ſick at her ſtomach, ſweat much in the night, complained of pains, owing, it was thought, to cold contracted. The clyſter,

ſter, the powders every ſix hours, and the ſallad oil, were repeated. The *nitre* was omitted, and the *opium* quite laid aſide. She ſweat much this day, and drank plentifully of water-gruel and baum tea. The clyſter worked well. *Wedneſday* morning, 31ſt, the pains were gone. She had been ſick at midnight, after which ſhe had ſweat profuſely; all ſymptoms diſappeared, except her dread of water and dogs. The *opium* plaiſter was removed, and the powders continued every ſix hours, but in the evening were only ordered night and morning. On *Thurſday* the ſymptoms returned, but abated after her drinking tea. This night ſhe was much frighted by dreams. On *Friday* morning a clyſter was given; the dread of water was now quite over, only it made her giddy. *Sunday* ſhe mended in appetite, ſtrength, and ſpirits, and continued ſo till the 16th of *Auguſt*, when the young woman, through the folly or wickedneſs of a man and woman, was thrown into the greateſt terrors. An opiate was given that night, and the *cinnabar* powders were directed in *elder flower* tea. She was vomited with *ipecacuanha* wine, bled to about twelve ounces, and took ſaline draughts with bitter and antihyſteric medicines. Doctor NUGENT judging the caſe to be now hyſterical, directed the following powder, which Doctor HALLET, of *Exeter*, had uſed with great ſucceſs.

℞ *Aſ.*

℞ *Aſ. fœtid. gr.* xij. *moſch. gr.* x. *camphor. gr.* vj. *m. f. pulvis.*

This was given in the afternoon in a bolus, and repeated at bed-time, with the ſaline draughts between whiles. The next day, after ſweating conſiderably, and ſleeping well, ſhe was much mended, in all reſpects. Two ſaline draughts were ordered for the day, and the fœtid bolus at night; and on the 4th of *September* ſhe was ſo well, as to require no more medicines, and has remained well ever ſince.

Remarks.

This Caſe of Elizabeth Bryant plainly ſhews how greatly both the body and mind are affected by this terrifying accident of the bite of a mad dog. From the account, and Doctor Nugent's very ingenious and juſt obſervations, it is evident, this young woman was bitten by a dog in whom the heat of the weather in the month of *June*, the ſituation the animal was placed in, frequently as a turnſpit, and perhaps the want of water, had raiſed a fever, and, as is common, a *delirium* enſued; in which fit he bit Elizabeth Bryant: but ſhe was not apprized of his madneſs, till, having offered him ſome minced meat, he could not ſwallow it, frothed much at the mouth, and ſlavered. His dying the next

day, without violence, and a dog being killed raving mad, three weeks after, who had eaten the meat refuſed and ſlavered on by the other; put it out of doubt, that the acute fever, raiſed in the turnſpit dog, had ſufficiently produced, before his death, that degree of acrimony in his *ſaliva*, as ſtrongly to affect not only the other dog, but ELIZABETH BRYANT alſo.

From the aſſurances given her, by a neighbour, that the dog did not die mad, but choaked by ſomething ſticking in his throat, ſhe ſeems to have had no further anxiety, till about three weeks after; when, probably, the madneſs of the other dog brought the accident freſh again into her mind. She then becomes of an unſettled temper, reſtleſs, and fearful of dogs and water. Mr. WRIGHT attempts the uſual preventive cure, and, finding no effect from the ſea-water bath, which ſhe could bear no longer, he bled her, gave Doctor MEAD's *pulvis antilyſſus*, and put her into the cold bath, which was left off on the appearance of the *menſes*.

This treatment, prudent and well intended, although it might protract the effects of the latent *virus*, yet it did not prevent it from ſhewing itſelf: firſt, by the appearance of two pimples, with white heads, on the back of the hand; and after, by a numbneſs and pain in the arm, hand, and ſhoulder, of the bitten arm. Upon this, the *cinnabar* and *muſk* medicine being adminiſtred, ſhe found relief from

from her pains, and her ſpirits were raiſed, for a while; but, five hours before the full moon, the pains from the bitten parts ſhoot regularly up the arm to her throat, and, as theſe advance, the terrors of her mind increaſe. Doctor NUGENT, in theſe circumſtances, orders the young woman to be blooded; and, being chiefly of a ſanguine conſtitution, the bleedings are repeated, during the courſe of the illneſs, till ſhe had loſt near ſixty ounces of blood: and if theſe evacuations, together with the regular courſe of the *menſes*, be attended to, there ſeems the ſame event to have followed, as in the perſon from whom Doctors HARTLEY and SANDYS drew 120 ounces *. The *cinnabar* medicine and *opium* are then directed, to promote ſweat, aſſuage the pains, and relax the nervous ſyſtem ſo as to remove the ſpaſms, and the irritation which cauſed them; and alſo to quiet the mind, by procuring ſleep.

Doctor NUGENT was ſo deſirous of avoiding all kind of irritation, that he rejoices at his omiſſion of the *turpeth mineral* bolus which he had preſcribed; and even declares †, as a caution to others, that he ſhould not have directed *antimonial* clyſters, on account of their irritation, had not the free uſe of *opium* made their ſtimulating quality, as he thought, neceſſary.

* Philoſophical Tranſactions, N° 448.

† NUGENT's Eſſay on the *hydrophobia*, p. 99, 100.

The

The Doctor tried to preſerve his patient from too great a heat and inflammation, by the uſe of *nitre*, but this ſalt proved nauſeous; and therefore he contented himſelf with diluting, by means of *water gruel* and *baum tea*. His directions proved ſucceſsful; but the mind, like the body, remained weakened, and liable to a relapſe upon the firſt ſurprize. The inadvertence or miſchievous deſign of the perſons who affrighted her, threw her into all the former terrors, and ſhe felt, as ſhe thought, the ſame pains; but a vomit ſeaſonably given that night, to remove a loathing and ſickneſs at the ſtomach; her being blooded two days after, and the courſe of antihyſteric medicines, reſtored that due ſtate of the ſolids and fluids which conſtitutes health; and, no doubt, proper encouragement, and comfort, alſo recovered her mind to it's former chearfulneſs and tranquillity.

Upon the whole, ELIZABETH BRYANT's caſe appears to be an acute, not a putrid one; and the neceſſary evacuations, together with her fright, may have produced the high degree of *hyſterics* which followed.

CASE

CASE III, IV, and V.

THE 29th *December*, 1751, Mr. JOHN MEHEW, a farmer of *Godmanchester* in the county of *Huntingdon*, having been abſent from home a few days, returned in the evening, and was informed that his yard dog was run mad, and had bitten eight cows, moſt of them with calf, and two ſows with pig; all which refuſed to eat or drink, and died mad. The cows had the *pewter medicine* given them, by way of drench, ſeveral times, but without ſucceſs.

This evening, *December* the 29th, one of the cows, being thought bitten, had been looſened, they having been all tied up, ſoon after they were bitten. She was no ſooner at liberty, than ſhe ran furiouſly up and down the yard, endeavoring to do all the miſchief poſſible, but was ſecured by JOHN JONES, the man ſervant, whom the cow bit in the fore finger, which was much torn. The ſame evening Mr. MEHEW going to aſſiſt in giving the ſame cow the drench of the *pewter medicine*, ſhe bit him on the back of the left hand, and tore it much. The cow would not admit of the leaſt drop of the drench, and ſlavered a great quantity into the bowl, in which, not knowing what had happened, Mrs. MEHEW dipped her fingers, and taſted the

the liquor, to feel if it were not too hot. Being told the cow had ſlavered in it, ſhe was much terrified.

Upon being ſent for, I met the late Mr. HENRY HAWKINS, ſurgeon and apothecary at *Huntingdon*, who dreſſed Mr. MEHEW's and JOHN JONES's wounds in the following manner. Firſt, the wounds were cleared from the *ſaliva* with dry ſoft lint, then they were dilated, and ſuffered to bleed, the blood being waſhed off with warm milk and water, and the wounds dried, they were dreſſed with pledgits of lint dipped in warm *oil of turpentine*, over which, cataplaſms of bread and milk, with *Venice treacle*, were applied. Mr. MEHEW, and his ſervant JOHN JONES, were then blooded plentifully, and at night they and Mrs. MEHEW were vomited with *vinum ipecacuanhæ* and *oxymel ſcilliticum*: after the operation, a cordial draught was given to each of them. The next morning they took Doctor MEAD's *pulvis antilyſſus* in warm cow's milk. Mr. MEHEW's hand, and JOHN JONES's finger, were dreſſed with pledgits ſpread with *unguentum e gummi elemi*, after rubbing on the lips of the wounds, and over the back of Mr. MEHEW's hand, and JOHN JONES's finger, about one dram of the *unguentum cæruleum fortius*.

I directed them to take, each of them, two ounces of Doctor FULLER's *decoctum antilyſſum*, in the afternoon at five o'clock. The

next

next day Mr. MEHEW and JOHN JONES were dreſſed with the ſame ointments, adding only to the *unguentum e gummi elemi* ſome *mercurius præcipitatus ruber*, to keep the wounds open, and diſcharging. The *pulvis antilyſſus* and *decoctum antilyſſum* were continued eight days, after which, the *Chineſe cinnabar* medicine was directed, with this difference, that Mrs. MEHEW took the powder with a julep made up with *pennyroyal* water, *rue* water, tincture of *caſtor*, and of *valerian*, and ſyrup of *ſaffron*; and Mr. MEHEW and his ſervant JONES took it with a ſpoonful of *rum* and water.

By this method no bad ſymptom appeared, and the wounds were permitted to heal at the month's end, the mercurial ointment having always kept them free from inflammation. I adviſed the uſe of the cold bath; but, ſatisfied with their cure, they did not chuſe to plunge into cold water in that ſharp ſeaſon of the year, in the midſt of froſt and ſnow; and have never felt any bad conſequence, either from their bites, or apprehenſions; being all alive, and in perfect health, at this time.

REMARKS.

That not only the dog was mad, but alſo the cattle whom he bit, is evident, from their all dying furious. That Mr. MEHEW and his ſervant JONES received the *ſaliva* of the cow, with

with their wounds, I make not the leaſt doubt of. But although I am perſuaded of the efficacy of mercurial unction, and of the method purſued; yet I am not clear in my opinion, whether the *ſaliva* of a mad cow, bitten by a mad dog, would tranſmit the ſame vitiated *virus*, and poiſonous effects, to the perſons ſhe bit: for, poſſibly, the particles of the mad dog's *ſaliva*, circulating in the blood of the cow, might have the baneful effect of producing fever, *delirium*, convulſions, *hydrophobia*, and death; and yet the aceſcent diſpoſition of the fluids in the cow might ſo alter the nature of the particles of the dog's *ſaliva* circulating in them, that the effect of the cow's *ſaliva*, upon the perſons ſhe bit, was not irritating to produce the bad ſymptoms. And may not this be a material difference between *granivorous* and *carnivorous* animals? Be that as it may, I would not hazard my patients to this conjecture, which repeated obſervation can only determine.

With regard to Mrs. Metrew, as ſhe had no wound, nor ſcratch, of any kind, wherein the *ſaliva* of the cow could be admitted; my treatment of her was merely cautious, to prevent any ill effect from ſwallowing the leaſt part of the cow's *ſaliva*; but chiefly to guard againſt the approach of hyſteric and nervous diſorders, which the ſurprize and apprehenſion ſhe was thrown into might have produced. With this view, I did not chuſe to have her

blooded

blooded with the others; but, after the vomit, and during the courſe of the medicines, I directed the uſe of *antihyſteric*, nervous, and cordial compoſitions, to be taken with thoſe particular ones recommended for the diſtemper ariſing from the bite of the mad dog: and I all along, and ever ſince have, aſſured her, that I did not believe ſhe was infected by the cow's *ſaliva*, nor would feel the leaſt bad effect from it.

CASE VI.

The CASE *of* FRANCIS RAY, *blackſmith, of* Little Swaffham, *in the county of* Cambridge. *Communicated by* CHARLES ALLIX, ESQ.

ON *Tueſday* the 19th of *November*, 1754, one RAY, a poor man, of *Little Swaffham*, applied to Mr. ALLIX, begging ſome ſea water for the uſe of his ſon, 22 years of age; who, being at work with a blackſmith at *Cambridge*, was there bitten by a mad dog, three weeks before. The wound, between the fore finger and thumb, being only ſkin deep, and not in the leaſt painful, the young man gave no attention to it, till, at the new moon, on the 14th of *November*, his hand began to ſwell, and be painful, and continued daily increaſing till the 18th, when he went home to his father's.

Mr. AL-

Mr. ALLIX, not expecting any benefit from his ſea water, which was grown ſtale, ſent the young man two doſes of Doctor JAMES's fever powders, with directions to take one as ſoon as the ſea water had done working, and the other at night. Soon after, Mr. ALLIX, recollecting he had Doctor JAMES's pamphlet, which related, in a letter to profeſſor BOERHAAVE, the effects of mercurials, in ſuch caſes; he ſet out, at two o'clock in the afternoon, for *Cambridge*, to have the medicines prepared.

In his way, Mr. ALLIX called on the young man, and looked at the wound, which was not open, but much inflamed, and round it a circular ſwelling. He complained of great pain in the wound, darting up the arm; had convulſive catches in his limbs, and his eyes looked very wild, and ſtaring. He felt great anxiety in his ſleep, and had been very feveriſh.

The ſea water came partly off his ſtomach quite clear, the remainder purged him. Doctor JAMES's powder alſo vomited and purged him. It brought off a great deal of green ſtinking bile, after which the fever was much abated.

Between ſeven and eight in the evening, Mr. ALLIX called at *Little Swaffham*, on his return from *Cambridge*, when the ſwelling was increaſed, the inflammation more intenſe, extending itſelf quite up the wriſt, and part of

of his fore arm; and complained that the pain, which grew more violent, now ſhot to his heart.

The part was immediately rubbed with half a dram of the mercurial ointment. The ſecond doſe of Doctor JAMES's powder having been juſt given, although forbidden by Mr. ALLIX; he could not give the poor man the *turpeth mineral* bolus.

The fever powder having operated in a milder manner than the former doſe, the young man fell into a breathing ſweat, and quiet ſleep, which held him the whole night: next morning, *Wedneſday* the 20th *November*, Mr. ALLIX found the ſwelling greatly abated, and the man's looks more compoſed. He then took one of the following boluſſes:

℞ *Turpeth. mineral. gr.* xij. *pulv. contrayerv. comp.* ʒj. *theriac. andromach. q. ſ. m. f. bol.* iij.

It worked him violently, upwards and downwards: in the afternoon he took one of Doctor MEAD's powders (a dram and a half of the *pulvis antilyſſus*) The wound and hand were anointed, and directions were given to repeat the rubbing in of the ointment, morning and evening.

Thurſday, 21ſt, the ſwelling, and inflammation, were almoſt gone. A ſecond *turpeth* bolus was taken, which wrought very briſkly;

and Doctor MEAD's powder was given in the afternoon.

Friday, the 22d, he complained, at times, of the pains returning, which alarmed him much. He took a *turpeth* bolus in the morning, and repeated the ointment both in the morning and evening, which he was directed to apply, as often as the pain and inflammation were inclined to return.

Saturday, 23d, the ſwelling and inflammation were not to be ſeen, his mouth began to be ſore, and he ſpit much. Mr. ALLIX deſired he would take another *turpeth* bolus that evening, and the two remaining doſes of the *pulvis antilyſſus* at proper intervals, leſſening the quantity of the ointment to be rubbed in, by degrees. Mr. ALLIX, going out of the country for a few days, left orders with RAY's father, in caſe a ſalivation ſhould come on, or the pain and inflammation return, to apply to Mr. JENNINGS, apothecary in *Cambridge*.

Wedneſday, the 27th, Mr. ALLIX returned to *Swaffham*, and called on the poor man, whom he found free from complaints, only weakened by the regimen he had followed. In this gentleman's abſence, the family had been alarmed at a trifling return of the pain and inflammation. Mr. JENNINGS had been ſent for, and only ordered an electary with *valerian*, in addition to what was before directed.

The

The ſwelling and inflammation being now entirely gone, Mr. ALLIX deſired the man to uſe the mercurial ointment very ſparingly, and leave it off by degrees; and recommended, as ſoon as poſſible, the uſe of the cold bath. About the 10th of *December*, the young man, and his father, called upon Mr. ALLIX, to thank him for his charitable aſſiſtance, and to let him know that young RAY was quite well, and returning to work.

Mr. ALLIX farther obſerves, that, notwithſtanding the viſible effects of the mercurial ointment, in removing the pain and inflammation on the firſt application, and abating the violence of the ſymptoms, before even the firſt *turpeth* bolus was taken; they, more than once, ſeemed inclined to return, but were removed again by a freſh application of the ointment.

The diet was chicken, or other freſh white meat, and a glaſs or two of Madeira wine made into negus, to keep up his ſpirits.

REMARKS.

This Caſe affords evident proofs of the effects ariſing from the putrid *ſaliva* of a mad dog, in autumn; the progreſs is alſo plainly to be traced: and had not Mr. ALLIX's kind aſſiſtance been applied in the very critical moment, there is no doubt but the ſevereſt ſymp-

toms had ſoon followed, and the patient had loſt his life.

It is to be obſerved, that the ſea water, although ſtale, diluted the green tenacious bile, and carried part of it downwards. Doctor JAMES's powders ſerved as vomits, which cleared the ſtomach from the vitiated putrid bile, and took off ſo much of the irritation as to permit the *turpeth* bolus to be given without increaſing the inflammation. But before the firſt *turpeth* bolus was taken, the young man's fever and ſwelling had abated; he had fallen into a breathing ſweat, and ſlept quietly the whole night, after the firſt mercurial unction on the *Tueſday* evening. On *Wedneſday* morning the patient's looks were compoſed, and then he took the firſt *turpeth* bolus; and on *Thurſday* the ſwelling and inflammation were almoſt gone before the ſecond *turpeth* bolus was taken. On *Saturday* the young man's mouth became ſore, and he ſpit much; notwithſtanding which, Mr. ALLIX directed the third *turpeth* bolus to be given, and the remaining two doſes of the *pulvis antilyſſus*; ſo that the ſalivary and urinary diſcharges were encouraged to the utmoſt: but, for fear of increaſing the ſalivation too much, the ointment was ordered to be then rubbed in ſparingly.

In Mr. ALLIX's abſence, Mr. JENNINGS, the apothecary, only gave the patient an

electary chiefly compoſed of *valerian*, on account of his low and weak ſtate after the ſpitting.—And on the 10th of *December*, that is, at the end of three weeks, the young man was perfectly cured.

If any farther proof be neceſſary, of the mercurial ointment having effected this cure; Mr. ALLIX has added a very ſtrong teſtimony, by ſaying, that the ſymptoms were, more than once, inclined to return, but were as often removed by the application of the mercurial ointment.

CASE VII.

IN *March*, 1759, Mr. LEWIS ALSOP, a butcher, aged about thirty years, of a robuſt make, but phlegmatic conſtitution, had the calf of his leg much tore by the bite of a mad dog. He went down, immediately, to *Lynn* in *Norfolk*, where he bathed in the ſea. His wound healed without difficulty. About the end of *March*, 1760, having opened ſhop at *Witton*, in the county of *Huntingdon*, he complained, to ſeveral of his cuſtomers, that the calf of his leg was very painful, particularly at the change and full of the moon, at which time he always appeared much dejected.

Being conſulted, I adviſed him to rub all over the calf of the leg, but more particularly over the wound, a dram of the *un-*

guentum cæruleum fortius, morning and evening, during a week, and every fourth day to take a purge of *manna*, and of the *bitter purging ſalts*. This method having ſucceeded, I recommended the repetition of it three days before every new and full moon, and as long after, during three months, taking care to purge, to prevent a ſalivation; which injunction he carefully followed, in the months of *May*, *June*, and *July*, following. In *October* Mr. ALSOP came to me, ill of an intermitting fever, for which I directed a vomit, and the *Peruvian* bark, whereby it was ſoon cured.

In *December* 1760, he called upon me, to thank me for all my care; and told me, he had been free from pain, or any complaint in his leg, ſome months, and ſo he continued to his death, which, as I am informed by Mr. HUNT, his apothecary, aſſiſtant to SIR THOMAS MACKWORTH, was occaſioned by a putrid fever, which he contracted from a neighbour, whom he viſited in his laſt moments, and of which fever he alſo died, on the fifteenth day, *March* 7, 1761.

REMARKS.

From the periodical returns of the pain in the part which had been wounded, it appears, that the bathing in the ſea had not carried off the *virus*; but that it remained in the blood.

blood. The ceſſation of the pain, after the firſt mercurial unction, ſhews the power that *mercury* has of driving the vitiated *ſaliva* out by ſome of the emunctories: and had not Mr. ALSOP been perfectly cured from the effects of the bite he received from the mad dog, it is more than probable, that, in his laſt illneſs, the ſymptoms, ariſing from the bite, would have appeared.

Upon the ſtricteſt inquiry, I do not find, that he had either the dread of water, or of dogs, or any converſation tending to expreſs the remembrance of his former accident; but only the ſymptoms uſually attending fevers of the kind which proved fatal to him.

CONCLUSION.

THE foregoing conſiderations afford the pleaſing hopes, that this diſeaſe, hitherto ſo terrible, and aggravated by the apprehenſions which attend it, may now become, like others, more certainly cured; and therefore much leſs dreaded than heretofore.

But, before I proceed to lay down the directions to be followed, taken from the obſervations I have related, it may not be amiſs to inquire, Whether the general alarm, ſpread all over the cities of *London* and *Weſtminſter*, and parts adjacent, in 1760, and alſo in ſeveral other parts of *England*, was occaſioned by any real cauſe, which infected dogs, and produced that madneſs? or whether it was merely a panic which had ſeized the inhabitants of thoſe places?

The winter of the year 1759 had been very mild, and open; the ſpring of 1760 very forward: ſcarce any ſnow, or froſt, had appeared in thoſe ſeaſons; and, during the whole ſummer, myriads of inſects were ſeen in every leaf, upon the trees; and the ſprings, remarkably low, were full of them; more particularly the ditches, and pools of ſtagnating waters, of which the cattle were frequently obliged to drink, through the ſcarcity of water: and

and even the inhabitants of ſeveral villages had no other ſupply. Hence aroſe, in the autumn, eſpecially among the poorer ſort of people, putrid fevers, of ſuch a malignant nature, as to be little inferior to peſtilential diſtempers. Perſons, in all appearance, in ſtrength, and vigor of health, were carried off, in three, five, ſeven, or nine days, with the moſt violent marks of malignity and putrefaction. All had *petechiæ*; and none eſcaped without critical abſceſſes of the *axillary*, *inguinal*, and ſometimes of the *parotid* glands.

No wonder, then, that the brute creation were alſo liable to ſuch illneſs as corrupted waters could bring on; and eſpecially if their food was equally corrupt, which dogs are known to feed upon of choice. The offals, uſually caſt about the ſhambles in every great town; the ſtinking waters contained in ſome marſhy grounds; and, perhaps, even the want of water, in many places, might cauſe this madneſs among the dogs.

It firſt appeared in the borough of *Southwark*; and the conſternation diffuſed itſelf all over the cities of *London* and *Weſtminſter*. The magiſtrates immediately iſſued out a very prudent and judicious order, for every perſon, who kept dogs, to confine them, during a month, within doors; and ordered their beadles, and other officers, to deſtroy all dogs found at large; with a reward of two ſhillings for each dog which ſhould be killed.

But

But as the wiſeſt and moſt judicious intentions are frequently perverted, and the moſt beneficial regulations prove oppreſſive, through an abuſe of power; ſo this reward prompted a licentious rabble to kill every dog they could meet, within their reach, with all the barbarity poſſible: and too often the number of real mad dogs was increaſed, by the violent purſuits and attacks of the giddy and unthinking populace. Therefore it muſt appear very plain, that, as there was ſufficient cauſe, in that hot ſeaſon, to produce the putrid fever, and madneſs, among dogs; ſo their number was multiplied, by the barbarous uſage they met with; and even all theſe added, fell far ſhort, in number, to thoſe who were killed through wantonneſs, and without reaſon.

The fatal perſuaſion, that there was no cure for the diſeaſe incident to mankind from the bite of a mad dog, may have juſtified the conſternation which was ſo general in the metropolis: but now, that, in many parts of the world, ſucceſsful cures have ſhewn this malady not to be incurable, there can be no longer any plea for that extreme anxiety and fear.

There is but one general rule to be obſerved in the treatment of this diſorder, that is, the application of the *mercurial ointment*, which can never be ſafely diſpenſed with: all other rules, of evacuations, external applications, or internal medicines, muſt be varied, according to the ſtage of the diſeaſe, the age, and con-

conſtitution, of the patient. However, for the direction of ſuch who may not be at hand to have aſſiſtance, the following particulars are mentioned.

The part bitten ſhould immediately be cleaned from the *ſaliva* of the mad dog, and the wounds encouraged to bleed, carefully clearing the blood away; then half a dram of the *mercurial ointment*, known by the name of *unguentum cæruleum fortius*, or the *ſtronger blue ointment*, ſhould be rubbed in, and repeated night and morning, increaſing or leſſening the quantity, as it may prove neceſſary. Sanguine conſtitutions will require bleeding; leucophlegmatic, relaxed, and bilious ones, ſhould be vomited, either with *ipecacuanha* wine, with or without *oxymel of ſquills*, which will cleanſe the ſtomach and bowels from the putrid bile, and acrid *ſaliva*, that has been diſcharged into them; and in the advanced ſtage, when liquids begin to paſs with difficulty, if it be requiſite to empty the ſtomach and bowels, after plentiful bleedings, ſome grains of *ipecacuanha* and *white hellebore* root may be given in a bolus, made up with the *oxymel of ſquills*. Theſe vomits will be leſs apt to irritate the *primæ viæ*, than either *turpeth mineral*, or any *antimonial* preparation.

Doctor MEAD's *pulvis antilyſſus* may then be taken every morning, in warm milk, to procure the urinary diſcharges, while the *mercurial* frictions are continued; and if theſe are inclined

inclined to ſalivate, an emollient clyſter; or a purge, with *manna*, *cooling ſalts*, and *rhubarb*, may be given. *Rhubarb*, either in powder, or the ſyrup, will be beſt adapted to children. Clyſters are recommended, in all ſtages, by Doctor DESAULT, profeſſor BOERHAAVE, and Doctor MEAD; and are to be compoſed of ſuch ingredients as the caſe may require, whether emollient, or coolers. After the mercurial ointment has been uſed four or five days, and the patient purged with ſome of the abovementioned medicines, or, if neceſſary, with *crude mercury*, divided with *turpentine*, and mixed with *rhubarb*, or by *mercurius dulcis*, well ſublimed, and mixed with *rhubarb*; then it may be proper, in ſome caſes, eſpecially where the ſpaſms are frequent, to give the *cinnabars*, either with or without *muſk*, as perfumes agree or diſagree with the patient: indeed there are inſtances wherein *muſk* has not been diſagreeable to the ſtomach, although the perſon could not uſually bear the ſmell of it. The *cinnabar* powders are to be taken every ſix or eight hours, with a julep of *rue water*, *pennyroyal water*, *tincture of caſtor*, and ſome common ſyrup, or in a glaſs of *arrack* alone, or with water.

In tender conſtitutions, antiſpaſmodic and antihyſteric medicines may be uſed, towards the end of the cure; but nature, in this diſeaſe, no more than in any acute diſorder, is not to be overcharged with medicines: for,

as

as Doctor MORTON obſerves *, " an officious " overloading ſeldom goes off unpuniſhed." And care muſt be taken, leſt, inſtead of ſtrengthening the nerves, they ſuffer not by too much irritation.

Such patients as can, without fear, be prevailed upon to go into the cold bath, willingly and of themſelves, may complete their cure by that immerſion; but force, or too earneſt perſuaſion, are cautiouſly to be avoided.

The diet to be kept, during the mercurial fric̈tions, which, as hath been ſaid, are to be repeated according to the caſe, and intirely depended upon, is to be light and nouriſhing, neither high ſeaſoned, nor acrid: in the worſt ſtages, a moderate quantity of wine may increaſe the inflammation; whereas wine may be of uſe in the beginning, and in a dejected ſtate. White meats will ſuit the ſtomach beſt; and milk pottage, water gruel, *polenta*, that is, a decoc̈tion of *oatbread* toaſted, and *toaſt and water*, may be drank: as likewiſe an infuſion of *black currants* ſtalks and leaves, or *baum* tea ſweetned with *black currant* jelly: theſe two laſt will better ſuit in the inflammatory ſtage.

So far from confining the patients to their room, or houſe; exerciſe, company, and diverſions, are to be encouraged: for the mind

* Natura non debet laceſſi medicamentis. Quod fit officioſè raro impunè patratur. RICHARDI MORTON Exercitationes.

being

being as much affected as the body, the cure will be much forwarded by a proper application to the paſſions, avoiding all converſation relating to madneſs, or mad dogs. Doctor DESAULT relates * the ſucceſs which attended theſe directions which he gave to a lady of *Bourdeaux*, who, under the courſe of mercurial frictions, conſtantly viſited her friends, went to concerts, and other public places.

Thus far the cure is only preventive of the *hydrophobia*, and deſigned for the milder progreſs of the diſeaſe, and alſo when it is complicated with *hypochondriac* or *hyſterical* ſymptoms; but in the confirmed ſtate, when the *hydrophobia* appears, the actual cure is to be performed by copious and repeated bleedings, cooling clyſters, often adminiſtred, of *barley water*, *nitre*, *honey*, *and vinegar*; and, after theſe evacuations, it may be allowable, in caſe of a conſiderable flow of the *ſaliva*, to apply a bliſter round the neck, to take off part of the diſcharge, as ſucceeded in Doctor HELE's remarkable obſervation: this is the only time wherein bliſters can be ſafely applied.—But the medicine chiefly to be depended upon is the *mercurial ointment*, which is to be rubbed in three times a day, and continued till the ſymptoms decreaſe, and the diſcharge from the glands of the mouth

* DESAULT Diſſertation ſur la rage, p. 311.

ſhew

ſhew it is proper to leſſen the quantity of the ointment.

When the throat and ſtomach will admit of liquids, the ſame method, above mentioned, may be purſued, towards compleating the cure.

F I N I S.

Publiſhed by the ſame AUTHOR.

I. An ESSAY on the Contagious Diſtemper among the Horned Cattle.

II. A DISCOURSE on the Uſefulneſs of Inoculating the Horned Cattle. Read before the *Royal Society*.

F I N I S.